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No. 18

HOW THEY FINISHED AT ATLANTIC CITY.

By A. G. BATCHELDER.

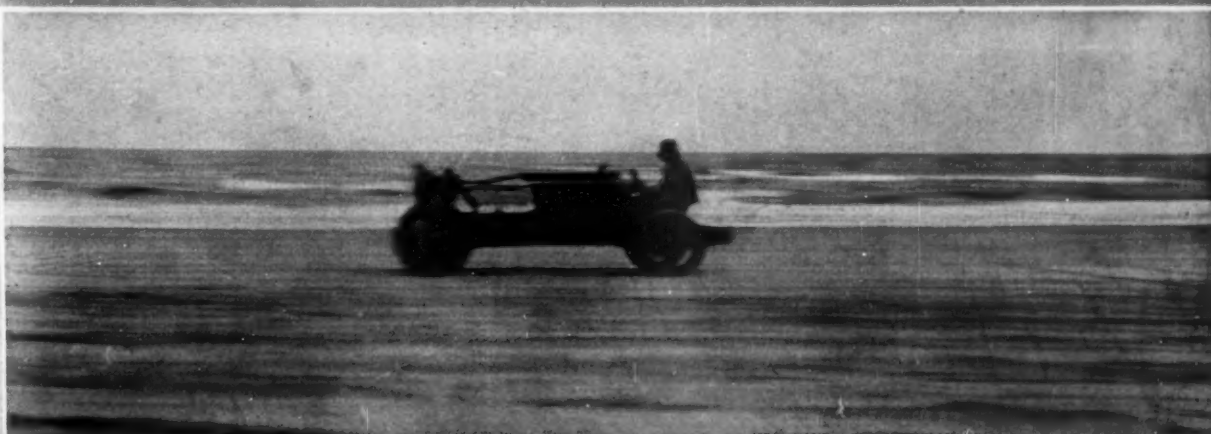
ATLANTIC CITY, N. J., April 27.—When a man has achieved the thing sought, worked for it tenaciously despite one disappointment on top of another, and persisted after friends have lost faith in the idea, the success that comes to him is sweet indeed; and Walter Christie's triumph at the Atlantic City meet figures in this class. Christie and his "Blue Streak" have made a familiar combination at race meets North and South for two years past, and the ups and downs of the even-dispositioned inventor who brought forth the revolving turret used on American warships have been watched by automobilists in general, and particularly by those of an engineering turn of mind.

The "car that pulls instead of pushes" was generously discussed; at times it looked like a failure, and then, again, its future took on a brighter hue, but never for an instant did the persevering Christie doubt the ultimate results of his labor. The encouraging and consistent swiftness of the 110-horsepower flyer on the beach at Ventnor does not positively prove the unquestioned worth of Christie's conception, but the front-drive has now reached a point where its further progress will be observed with added interest, for capital should be easily obtainable looking forward to its practical use in automobiles other than those built for racing purposes.

On the opening day Christie appropriated the one-mile standing-start championship, his mile in 0:53 landing him seconds in

front of the 80-horsepower Napier and the 60-horsepower Thomas. But the battle royal came on Thursday, when Christie tackled the Vanderbilt Darracq driven by Guy Vaughan. The heats of the race meant nothing except to narrow the final down to the Christie, Darracq, and Thomas cars. One false start, and the big fellows pounded over the beach with the Darracq resultlessly in front. Starter Wagner's flag dropped on the next getaway, and the onlookers saw the race of a year. Though the "Blue Streak" held the advantage all the way, it was by a scant margin that figured only two-fifths of a second at the conclusion of the mile. Those who shivered in the penetrating breeze that swept the stretch of sand awoke to the grand struggle and shouted themselves hoarse. The superior horsepower of the "Blue Streak" told the story, but the Darracq had supplied a battle such as one seldom beholds in motor competition.

The closing day of the meet saw the surcharged mechanical beasts go after the one-mile record over a course that was much slower than Ormond-Daytona and had one very poor patch of beach, so bad that Christie did not utilize his entire power all the distance. Over the ocean-rolled speedway his powerful craft flew until it deserved well its name of the "Blue Streak," for such it resembled more than anything else. Its mile in 0:35 1-5 was at the rate of 102.27 miles an hour, the fastest world's automobile traveling on any course except the one in Florida.



WALTER CHRISTIE DRIVING HIS 110-H.P. "BLUE STREAK" A MILE IN 35 1-5 SECONDS ON VENTNOR BEACH.



THE "BLUE STREAK" WINNING THE FINAL OF THE MILE CHAMPIONSHIP FROM THE VANDERBILT DARRACQ.



C. A. SCHROEDER'S 80-H.P. DARRACQ, W. WALLACE, JR., DRIVER.



W. H. HILLIARD DRIVING THE 80-H.P. NAPIER.

The Vanderbilt Darracq had to be content with a mile in 39 seconds, while C. A. Schroeder's similar powered Darracq, holder of the mile in 0:38 at Cape May, covered the distance in 0:39 3-5.

Satisfied with his honors, Christie generously asked to be excused from the free-for-all championship, and this resulted in a long-drawn-out win for the Vanderbilt Darracq, which lost the first heat to the Stanley steamer and the second one to the Cape May Darracq. After winning a heat Rogers had trouble with the steamer's brake and was unable to start in the second mile. In the third scurry over the sands the steamer succumbed to the Vanderbilt Darracq, which took the fourth heat and the Atlantic City Cup. Rogers was put out of the running by the hood flying up and striking him in the face, though he retained his presence of mind, stopped the machine, and escaped with a bruised face and bloody nose.

Touring Cars Supplied Excellent Sport.

Though the high-speed travelers occupied more or less of the center of the stage and supplied the spectacular trimmings, the bulk of attention was given to the well-filled events for touring cars.

On the opening day that veteran of racing, Charles Soules, piloted a 35-horsepower Pope-Toledo first across the line in the \$4,000 class; W. H. Hilliard, winner of the Mount Washington climb, successfully drove a Napier in the four-cylinder class, and Mortimer Roberts, with a 50-horsepower Thomas, triumphed in the stripped struggle. The Stoddard-Dayton jumped into the limelight with first and second in two events—in the 30-horsepower class for American cars and again in the price handicap.

Of the steam contingent, H. Ernest Rogers was the only one to obtain any glory, and his Stanley did the mile in 0:42 3-5. Harry Maynes was put out of the running by a leaky valve, and Mrs. J. N. Cuneo hardly expected to get under the minute with her White stock car.



ONE HEAT OF THE MILE STANDING-START CHAMPIONSHIP RESULTED IN A FALSE START IN WHICH THE DARRACQ ARRIVED FIRST.



START OF THE FIRST HEAT OF THE MILE STANDING-START CHAMPIONSHIP IN WHICH A CHRISTIE WAS WINNER.

First Day, Wednesday, April 25.**MILE CHAMPIONSHIP GASOLINE—STANDING START.**

1. Christie, 110 h.p.; owner and driver, Walter Christie..... 0:53
2. Napier, 80 h.p.; owner, Napier Motor Co. of America; driver, W. H. Hilliard..... 1:00 2-5
3. Thomas, 60 h.p.; owner, Henry S. Houpt; driver, M. Roberts 1:08 1-5

MILE TOURING CARS, GASOLINE, SELLING AT \$4,000 OR LESS.

1. Pope-Toledo, 35 h.p.; owner, G. S. Mann; driver, Charles Soules 1:13 2-5
2. Thomas, 50 h.p.; owner, Harry S. Houpt; driver, M. Roberts 1:15
3. Pope-Toledo, 35 h.p.; owner and driver, Stewart H. Elliot 1:16

ONE MILE CHAMPIONSHIP FOR FOUR-CYLINDER CARS.

1. Napier, 80 h.p.; owner, Napier Motor Co. of America; driver, W. H. Hilliard :46 2-5
2. Thomas, 50 h.p.; owner, Harry S. Houpt; driver, A. S. Robinson :58 3-5

ONE MILE STRIPPED TOURING CARS, 50 H. P. OR UNDER.

1. Thomas, 50 h.p.; owner, Harry S. Houpt; driver, M. Roberts 1:02
2. Chadwick, 40-45 h.p.; owner and driver, E. B. Jackson.. 1:06 4-5
3. Pope-Toledo, 35 h.p.; owner, H. E. Woodman; driver, Charles Soules 1:08 2-5
4. S. & M. Simplex, 30 h.p.; owner, J. S. Bunting; driver, Al. Poole 0:00

ONE MILE AMERICAN TOURING CARS, 30 H. P. OR LESS.

1905 Winner, Charles Bacharach.

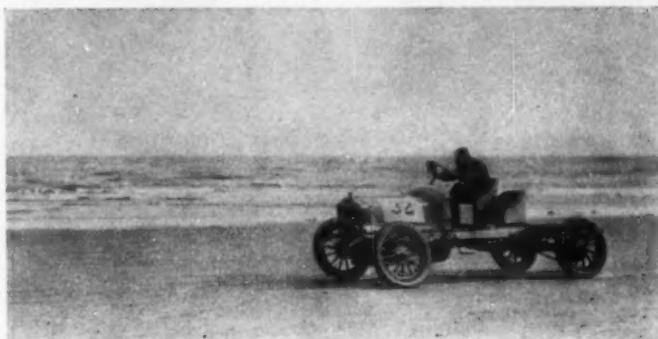
1. Stoddard-Dayton, 30 h.p.; owner and driver, P. F. Rockett 1:17 3-5
2. Stoddard-Dayton, 30 h.p.; owner and driver, F. S. Walton 1:18
3. Acme, 30 h.p.; owner and driver, P. A. Fogarty..... 1:18 3-5
4. Packard, 24 h.p.; owner and driver, C. B. Bacharach..... 0:00

ONE MILE PRICE HANDICAP FOR FOUR-CYLINDER TOURING CARS—REGULAR EQUIPMENT, TO CARRY FIVE.

1. Stoddard-Dayton, 50 h.p.; owner and driver, F. S. Walton, 17 sec..... 1:25 2-5
2. Stoddard-Dayton, 30 h.p.; owner, Zim Rock Motor Co.; driver, P. F. Rockett; 17 sec..... 0:00
3. Acme, 30 h.p.; owner, P. A. Fogarty; driver, D. Landau; 12 sec..... 0:00

ONE MILE RECORD TRIALS, STEAM.

1. Stanley, 20 h.p.; owner and driver, H. E. Rogers..... :42 3-5
2. White, 18 h.p.; owner and driver, Mrs. J. N. Cuneo..... :00



H. S. HOUP'T'S 50-H.P. THOMAS WINNER STRIPPED TOURING CLASS



THE REO BIRD, WINNER OF THE MIDDLEWEIGHT CHAMPIONSHIP.



ON THE OPENING DAY OF THE MEET THE WEATHER WAS PERFECT AND THE GRANDSTAND HELD THOUSANDS OF PEOPLE.



POPE-TOLEDO WINNER; OWNER, G. S. MANN; DRIVER, SOULES.



J. E. BRISTOL AND PIERCE TOURING CAR CHAMPION.



MRS. J. N. CUNEO DRIVING A MAXWELL AS "NO. 23."



P. F. ROCKETT AND HIS STODDARD-DAYTON WINNER.



J. E. DEMAR AND DAIMLER THAT WON FOREIGN CLASS.

The Doings of the Second Day.

On the second day the touring car championship made a race that counted as one of the best of the whole meet. Starter Wagner had his difficulties in getting the six qualifiers for the final off to a good start. J. E. Bristol was a happy Brooklynite whose Pierce fired the finishing gun. The others were close up, and the race was fought all the way. Harding, the Daimlerite, appeared to have made a mistake in selecting his course, and after the race filed a protest against the start, claiming that, being the pole car, none should have gotten away in front of him. Referee Morrell listened to the evidence in the evening and ruled that the work of the starter was perfectly fair. Archie Hughes, another Pierce driver, admitted that he had been negligent at the start and believed he would have won had he not been caught napping.

There was nothing to the middleweight championship except a romp for the 32-horsepower Reo Bird, Mrs. Cuneo with a 10-horsepower Maxwell being the runner-up.

The price handicap for two-cylinder cars showed H. J. Koehler a Buick winner, and a car of the same make finished behind him. It was the same thing over again in the runabout class for cars selling at \$1,000 or less.

Four Maxwells participated in the lightweight record trials, and Mrs. Cuneo excelled the others in 1:25 3-5. Then came Charles Fleming in 1:29 2-5, and Mrs. Rogers required 1:31 for her mile. C. W. Kelsey, trying a kerosene burner, was fourth in 1:36.

Of the half-dozen cars that started in the quarter-mile high-gear test, the only survivor was J. N. Wilkins, Jr., with a 20-horsepower Winton. He traveled the slowest on the high speed without stopping his car.

Second Day, Thursday, April 26.

ONE MILE HEAVYWEIGHT GASOLINE CHAMPIONSHIP.

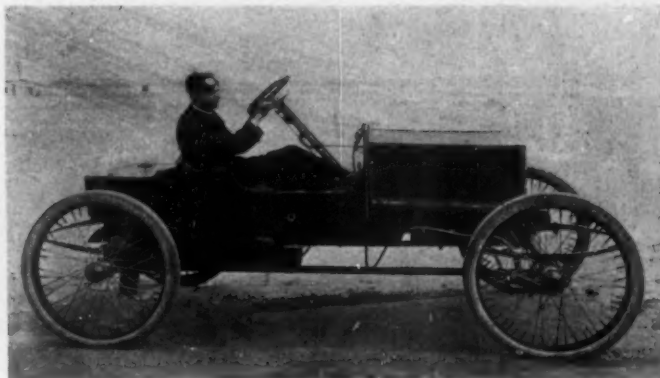
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|--|---------|
| 1. Christie, 110 h.p.; owner and driver, Walter Christie.... | :46 4-5 |
| 2. Darracq, 80 h.p.; owner, S. B. Stevens; driver, Guy Vaughan | :47 1-5 |
| 3. Thomas, 60 h.p.; owner, Harry S. Hout; driver, M. Roberts | :00 |



OFFICIAL STAND—WINTON WINNER OF HIGH-GEAR TEST.



F. S. WALTON, STODDARD-DAYTON WINNER OF HANDICAP.



H. E. ROGERS AND THE STANLEY STEAMER.

ONE MILE TOURING CAR CHAMPIONSHIP, 50 H. P. OR UNDER
—REGULAR EQUIPMENT, TO CARRY FIVE PASSENGERS.

1. Pierce, 40-45 h.p.; owner and driver, J. E. Bristol..... 1:07 2-5
2. Thomas, 50 h.p.; owner, John Megraw; driver, W. C. Thomas 1:08 2-5
3. Pierce, 40-45 h.p.; owner, C. B. Prettyman; driver, Archie Hughes 0:00
4. English Daimler, 30-35 h.p.; owner, English Daimler Co.; driver, H. N. Harding..... 0:00
5. Thomas, 50 h.p.; owner, Martin & Hart Co.; driver, E. R. Kelly 0:00
6. Pope-Toledo, 35 h.p.; owner and driver, Stewart Elliot.. 0:00

ONE MILE MIDDLEWEIGHT GASOLINE CHAMPIONSHIP.

1. Reo Bird, 32 h.p.; owner, Reo Motor Co.; driver R. L. Lockwood 1:00 2-5
2. Maxwell, 10 h.p.; owner and driver, Mrs. J. N. Cuneo.... 1:28 4-5

ONE MILE PRICE HANDICAP FOR TWO-CYLINDER TOURING
CARS—REGULAR EQUIPMENT, CAR TO CARRY
FIVE PASSENGERS. \$1,500 CAR ON SCRATCH.

1. Buick, 22 h.p.; owner and driver, H. J. Koehler; 2 sec.... 2:06 1-5
2. Buick, 22 h.p.; owner, Pennsylvania Electric Vehicle Co.; driver, W. Haupt, 5 sec..... 0:00
3. Cadillac, 10 h.p.; owner and driver, Archie Hughes, 11 sec..... 0:00

ONE MILE GASOLINE RUNABOUTS, SELLING AT \$1,000 OR
LESS, TO CARRY TWO PASSENGERS AND
REGULAR EQUIPMENT.

1. Buick, 22 h.p.; owner and driver, H. J. Koehler..... 1:50 3-5
2. Buick, 22 h.p.; owner, Pennsylvania Electric Vehicle Co.; driver, W. Haupt 1:17 2-5
3. Maxwell, 10 h.p.; owner, Maxwell-Briscoe Co.; driver, Charles Fleming 0:00
4. Maxwell, 10 h.p.; owner and driver, Mrs. J. N. Cuneo.... 0:00

ONE MILE RECORD TRIALS GASOLINE CARS, 881 TO 1,432
POUNDS.

1. Maxwell, 10 h.p.; owner and driver, Mrs. J. N. Cuneo.... 1:25 3-5
2. Maxwell, 10 h.p.; owner, Maxwell-Briscoe Co.; driver, Charles Fleming 1:29 2-5
3. Maxwell, 10 h.p.; owner and driver, Mrs. E. R. Rogers.... 1:31
4. Maxwell, 10 h.p.; owner, Maxwell-Briscoe Co.; driver, C. W. Kelsey..... 1:36

ONE MILE MISCELLANEOUS RECORD TRIALS.

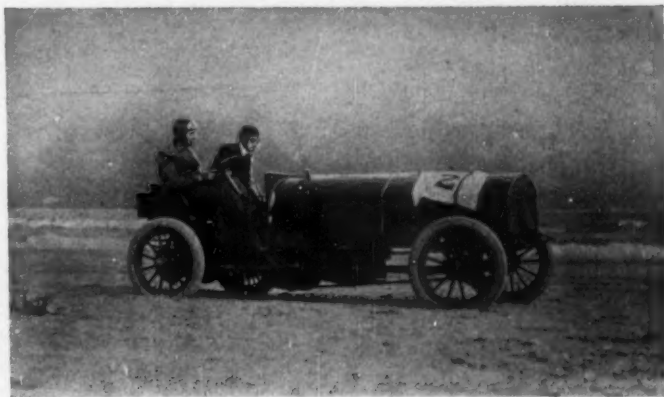
- Flat, 24 h.p.; owner, Hol-Tan Co.; driver, E. Cedrino..... :55 1-5
Thomas, 50 h.p.; owner, Harry S. Hout, driver, M. Roberts :55 4-5
Grout, 30 h.p. steamer; owner and driver, Harry Maynes.. 1:19 2-5

QUARTER MILE HIGH GEAR TEST.

- Winton, 20 h.p.; owner and driver, J. N. Wilkins, Jr.....No Time
Winner covered distance slowest on the high gear.



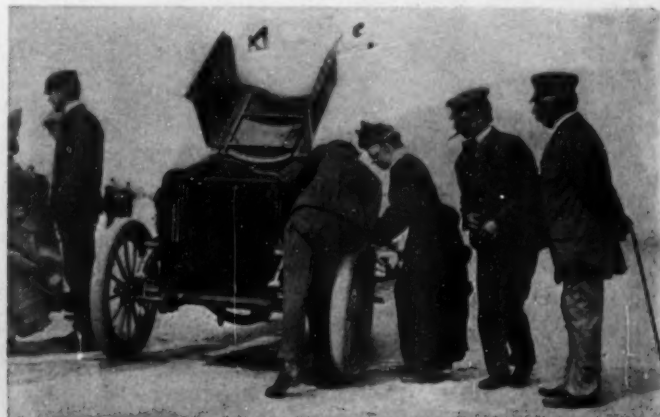
H. J. KOEHLER AND BUICK WINNER OF TWO EVENTS.



HARRY MAYNES AND THE GROUT STEAMER.



E. C. JOHNSON, "WHITE" WINNER OF CHAUFFEURS' HANDICAP.



MRS. J. N. CUNEO TAKES A LOOK AT THE MOTOR.



McMURTRY TO THOMPSON.



FIAT-ER TANGEMAN WAS PRESENT.



BUTLER AND OTHER SIBERIANS.



RIKER, ONE OF THE RELIABLES.

THOMPSON, MORRELL, COOK,
REEVES, WAGNER.

And On the Third Day.

On the closing day the distance annihilators did most of the racing. The Stoddard-Dayton added to its laurels by a win of the \$2,000 class, in which a Columbia ran a close second. The English Daimler had matters its own way in the foreign touring car class, President W. E. Edge's lesser powered Darracq being its only opponent. The chauffeurs' handicap fell to a White steamer driven by E. C. Johnson, and the handicap for the one-minute class fell to a 50-horsepower Thomas, with a car of the same make as its solitary rival in a decidedly close finish.

Third Day, Friday, April 27-

ONE MILE FREE-FOR-ALL CHAMPIONSHIP, BEST TWO AND THREE HEATS, FOR THE ATLANTIC CITY CUP, TO BE WON TWICE FOR PERMANENT OWNERSHIP.

Darracq, 80 h.p.; owner, S. B. Stevens; driver, Guy Vaughan	2	2	1	1
Darracq, 80 h.p.; owner, C. A. Schroeder; driver, Wm. Wallace, Jr.	3	1	3	2
Stanley, 20 h.p.; owner and driver, H. E. Rogers	1	0	2	dr.
Thomas, 60 h.p.; owner, H. S. Haupt; driver, M. Roberts	4	4	4	r.o.
Thomas, 50 h.p.; owner, H. S. Haupt; driver, A. Robinson	6	3	5	r.o.
Thomas, 50 h.p.; owner, Martin & Hart Co.; driver, E. R. Kelly	5	5	dr.	
Time, :49 1-5, :53 2-5, :47, :47 3-5.				

MILE RECORD TRIALS GASOLINE CARS, 1,432 TO 2,204 LBS.

1. Christie, 110 h.p.; owner and driver, Walter Christie	:35 1-5
2. Darracq, 80 h.p.; owner, S. B. Stevens; driver, Guy Vaughan	:39
3. Darracq, 80 h.p.; owner, C. A. Schroeder; driver, Wm. Wallace, Jr.	:39 3-5
4. Thomas, 60 h.p.; owner, H. S. Haupt; driver, M. Roberts	:51 3-5
5. English Daimler, 30-35 h.p.; owner, English Daimler Co.; driver, H. N. Harding	:55 4-5
6. Thomas, 50 h.p.; owner, H. S. Haupt; driver, A. Robinson	:57

MILE GASOLINE TOURING CARS SELLING AT \$3,000 OR LESS.

1. Stoddard-Dayton, 30 h.p.; owner, Zim Rock Motor Co.; driver, P. F. Rockett	1:22 1-5
2. Columbia, 24 h.p.; owner, Electric Vehicle Co.; driver, H. P. Bellew	1:22 3-5
3. Stoddard-Dayton, 30 h.p.; owner and driver, F. S. Walton	0:00

ONE MILE FOREIGN TOURING CARS.

1. English Daimler, 30-35 h.p.; owner, English Daimler Co.; driver, H. N. Harding	1:14 4-5
2. Darracq, 20-30 h.p.; owner, W. E. Edge; driver, E. Jacquelin	1:36 4-5

ONE MILE CHAUFFEURS' HANDICAP.

1. White, 18 h.p.; owner, W. W. Hepburn; driver, E. C. Johnson; 40 sec.	1:25
2. Thomas, 60 h.p.; owner, H. S. Haupt; driver, M. Roberts; 15 sec.	1:30 2-5
3. Pope-Toledo, 35 h.p.; owner, S. H. Elliot; driver, Albert Crane; 25 sec.	0:00

ONE MILE ONE MINUTE CLASS HANDICAP.

1. Thomas, 50 h.p.; owner, H. S. Haupt; driver, A. Robinson; 5 sec.	1:13 1-5
2. Thomas, 60 h.p.; owner, H. S. Haupt; driver, M. Roberts; scratch	1:13 3-5

The Atlantic City A. C. May Feel Proud.

All in all, the Atlantic City meet must be considered the most successful ever held in the North, and the Atlantic City Automobile Club has good reason to feel satisfied with its work. Alfred Reeves, the indefatigable, was the racing secretary, and from the officials and the Race Committee of the club he received all kinds of support. One could find mighty few flaws, and these were not worth talking about. One thing was noticeable on the concluding day, when Referee Morrell located at the starting point instead of being at the finishing line. The contestants moved with greater alacrity and the hard-working Wagner found his labors less exacting. Chairman J. D. Thompson of the A. A. A. Racing Board graced the occasion as honorary referee, and other notables of the sport and trade were present from New York, Philadelphia, and other cities. All the "who's who" contingent in automobiling appeared to be among those present. Of course, the timers were such good ones as McMurry, Butler and Kerrison.



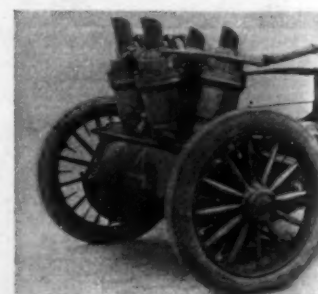
MRS. ROGERS AN ENTHUSIAST.



CEDRINO OF THE FIAT, JR.



THE ONLY TIRE TENT.



ENGINE OF THE "BLUE STREAK."



THEN THE TIDE CAME IN.

EUROPEAN CIRCUIT WILL BE HARD TASK.

By W. F. BRADLEY.

PARIS, April 15.—Notwithstanding the complete regulations and the various official notices published in the French press, there is a profound ignorance as to what the endurance contest known as the European Circuit really is. The other day the 24-horsepower De Dion-Bouton, in which M. Journu, Frantz Reichel and M. Branger, the Paris photographer of *THE AUTOMOBILE*, had completely explored the circuit from start to finish, drew up in front of the Automobile Club of France after an absence of over three weeks. The trio are the only persons who have a practical knowledge of the circuit, and their experience is therefore particularly interesting.

"Our 3,150 miles journey," said M. Branger, "lay through France, Italy, Hungary, Austria, Bohemia, from one end of Germany to the other, and Alsace-Lorraine."

The run through France was quite a commonplace event. There was snow at Lyons, although it was the end of March, and in the mountain districts all traffic was stopped; but it was not until Grenoble was reached that the roads became bad. From this town to Milan, a distance of 243 miles, is the first foreign stage of the circuit, and it had to be given up as impracticable, all the roads being hidden under several feet of snow. The De Dion-Bouton was shipped on the train and passed through instead of over the Alps, by way of Mount Cenis taking the road again at Bardonecchia.



CROSSING THE FAMOUS BRIDGE OF LODI.

Italy, the land of blue skies and vineclad hills, offered a weary spectacle under the gray March skies, and the roads were such as would strike terror into the hearts of the most resolute automobilist. From Suze to Turin one would describe it as bad, but from Turin to Milan no other word than abominable could be applied to it. Constructed of soft, greasy earth, over which stones have been loosely thrown, there are two deep furrows where the wheels of carts have passed and a well beaten muddy track in the center where horses have wearily plodded. When the wheels of the automobile are wedged in the deep furrows it is impossible to get them out again without breaking the steering gear, and when the driver endeavors to cut out a new track for himself there is so much thumping and rolling, and the car runs so dangerously near to the sentinel-like stone ports placed along the edge of the road that he is much perplexed as to which is the lesser evil.

Being winter the road conditions were slightly better than they will be in summer, for, however injurious the mud might be to the car, it is always preferable from the passenger's point of view to the dusty surface which the dry season will bring. As to the average speed of 45 kilometers an hour, which is imposed for certain categories, it will be utterly impossible, said M. Branger, for the competitors to perform it. Even the 24-horse-

power De Dion-Bouton, which ran remarkably well throughout the whole journey and required no tinkering, was not able to cover the stages in the regulation time. There were certain stretches of the road on which a speed of 40 to 45 miles an hour



GYPSY WAGONS ON THE ROAD BETWEEN ZNAIM AND IGLAU.

could be attained, but the road conditions never allowed this to be carried on for long.

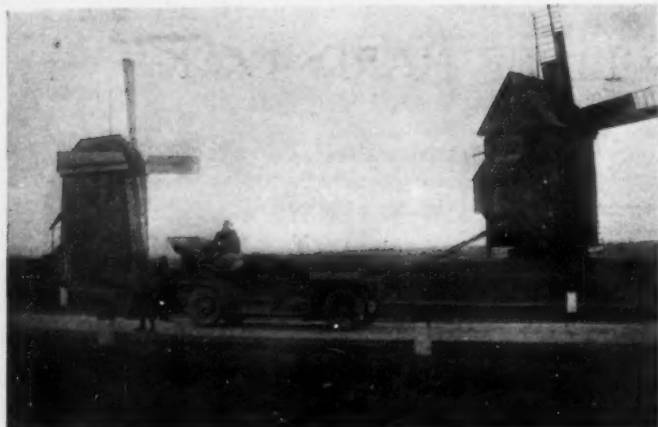
In Austria the road conditions were even worse than in Italy, and, to add to the difficulties, every time a horse was met the motor had to be stopped and the scared animal led by with great care. Notwithstanding all their precautions, the travelers had to plead guilty to causing the smash-up of many a cart, owing to horses bolting, and on one occasion they were the indirect cause of the death of a cow, a horse having shied and the shafts of the cart piercing the body of the poor beast. Half-wild dogs, which had never before seen an automobile, on more than one occasion had to pay the supreme penalty for their inquisitiveness.

In Italy, Austria, and parts of Germany the peasants displayed no more intelligence than did their four-footed companions, and the automobilists had to learn the art of dodging stones. Either the country folk were not well trained as marksmen, or the travelers were very successful in dodging, for neither the stones nor



A HALT BETWEEN BRESLAU AND LIEGNITZ IN SILESIA.

the gun-shots did any serious injury. Even the hotelkeepers only displayed a more refined form of savagery, the most perfect form of which was shown by an Austrian host, who presented a bill for \$14, dinner for four people. The chauffeur was included in



ROAD BETWEEN LIEDNITZ AND FRANKFORT ON ODER.

that amount for \$2.80. What an appetite that chauffeur must have had!

Outside France the obtaining of a supply of gasoline often gave anxious thought to the pioneers. In Italy and Austria the average price was 20 cents per liter, oil being proportionably dear. Three moderate-sized Austrian towns could not supply a drop of fuel. During the contest no such trouble will be met, for the organizers will place supply stations all around the circuit, where gasoline will be sold at a uniform rate of 8 cents a liter. To avoid the trouble of carrying a large amount of cash, checks can be obtained at the start at the price of 8 cents, each one being good for a liter of gasoline at any store on the circuit. Any left over at the end of the tour will be, of course, refunded at full value.

No difficulty was experienced in obtaining spare tires en route. It was necessary, however, to always carry a liberal stock on the car, for the abominable track serving as roads eat up tires with amazing rapidity. The De Dion-Bouton's consumption for the maiden voyage was eight outer covers and eight air chambers. Thus, for outer covers at \$44 and inner tubes at \$14 the total tire bill amounted to \$464. Some little patching of the road will, of course, be done before the tour commences, but obviously it can be nothing more than patching, and competitors may safely calculate on the sum quoted for tire expenses. Add to this \$400 for entrance, and together with driver's expenses the total will certainly run up to \$1,000 per car.

The regulations stipulate that each competitor must declare before the event the number of tires he intends to carry, in order to form a basis for classification in the tire competition. Profiting by the experience of the first car to cover the circuit thoughtful competitors will not fix this number too low for the journey. Although nothing has yet been officially announced, it is ex-



ON THE ROAD NEAR FRIESACH IN AUSTRIA.

ceedingly probable that changes will be made in the existing regulations, experience having shown that it is impossible to cover many of the stages at the average speed at present required. If a lower speed is admitted, the driver would have to remain at the wheel seventeen hours a day on certain sections—a human impossibility. The only solution, therefore, will be to cut some of the more difficult stages in two and extend the event over several days more.

No possible doubt will remain at the end of the trial as to the reliability and solid construction of the cars which accomplish the test. Nothing but the very best can hope to withstand the terrible strain of more than 3,000 miles over Europe's best as well as worst roads. To come out on top the driver, too, must be a man of great skill in the handling of an automobile.

Forty-nine Entries Received by First Closing Date.

At 6 o'clock, April 20, entries at ordinary fees closed for the great 3,000 miles endurance contest. The nations represented include France, America, England, Germany, Belgium and Italy, with a total of 49 competitors.

The only American car is a Pierce Great Arrow, entered by Percy P. Pierce, of Buffalo, which engagement was only received twenty-four hours before the closing of the lists.

Not many Italian entries had been received at the time of closing, but a request had been forwarded that the date should be postponed one month in order to allow several Italian firms anxious to take part in the competition to carry out the necessary formalities of engagement. It is pointed out that there is already a long interval between the closing of the lists on April 20, and the commencement of the tour on July 26. The committee does not feel justified in making such an important change on its own responsibility, but entered into telegraphic communication with the foreign clubs interested in the event and will give an early decision.

A message received from the secretary of the committee just as the American mail closes states that there is every probability of the date of entries at ordinary fees being advanced to May 30. It is thus safe to predict a bumper entry for the circuit.

The following is a list of the competitors in the order in which engagements were received: Two Darracq, France; 2 Mercedes, Germany; 1 Wolseley, England; 1 Regina Dixie, France; 1 Dixie, France; 4 De Dion Bouton, France; 1 Borderel, France; 4 Benz, France; 1 Pilain, France; 1 Scrive, France; 3 British Daimler, England; 2 Chenard Walcker, France; 1 Gobron Brillié, France; 1 Corneille and Sainte-Beuve, France; 2 Beerton-Humber, England; 1 Fiat, Italy; 3 Peugeot, France; 1 Pierce Great Arrow, America; 1 Pilain, France; 1 De Dion Bouton, France; 1 Krieger, France; 1 Wolseley, England; 1 Martin and Lethimonnier, France; 1 Benz, Germany; 1 Metallurgique, Belgium; 1 Alcyon, France; 2 Delahaye, France; 1 Itala, Italy; 1 Saventhem, Belgium; 1 Benz, Germany; 4 De Dion Bouton, France.

AUTOMOBILE ACCIDENTS IN LONDON.

A total of 1,726 accidents due to automobiles, motor omnibuses, and motorcycles were reported by the London police for the first three months of the present year, according to Herbert Gladstone, who gave the statistics in reply to a question put to him recently in the House of Commons. For the separate months the figures are: January, motor omnibuses, 211; autos and motorcycles, 301; February, omnibuses, 235; autos and motorcycles, 263; March, omnibuses, 331; autos and motorcycles, 385. Thus, in the three months omnibuses caused 949 accidents, and other automobiles and motorcycles, 777. The maximum legal speed in the London area is twenty miles an hour for pleasure vehicles and twelve miles for omnibuses.

Considering the great congestion of traffic in London and the fact that many minor accidents are included in the reports, whether directly caused by the power vehicles or not, the figures given are not considered excessive.

THE CARBURETER AND ITS FUNCTIONS.

MOST automobilists are aware, to their sorrow, of the fact that the carbureter is not as simple a device as it might seem at first glance, that its importance to the working of the engine is out of all proportion to its size, and that to master even a single carbureter to the extent of being able to adjust it to give the best results under given conditions is a matter requiring more than a cursory study. But the real magnitude

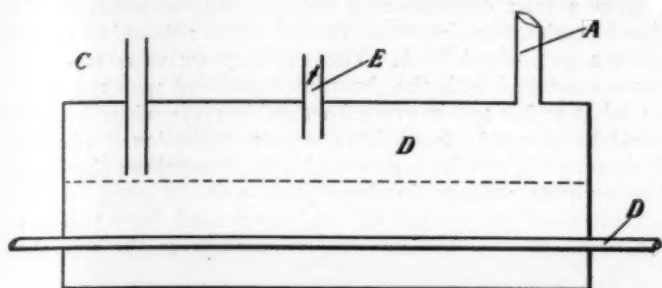


FIG. 1.—DIAGRAMMATIC SKETCH OF SURFACE CARBURETER.

of the subject is not generally appreciated, nor can it be without some knowledge of the various influences that must be reckoned with in making a carbureter as nearly perfect as possible.

Briefly stated, the function of the carbureter is to change a liquid hydrocarbon, such as gasoline, into a gaseous state and mix the gas thoroughly with air in certain proportions. This sounds quite simple, and the means taken to form the mixture were, in the early days of the explosion motor, correspondingly simple.

Fig. 1 is a diagram of the surface carbureter, as it is called, and was at one time the approved form. The surface carbureter was usually the gasoline tank itself, and from the top of the tank a pipe *A* established communication with the cylinder of the engine, through the inlet valve. As gas was drawn from the space *B* in the top of the tank it was replaced by air entering through a pipe *C*, whose inner end was brought close to the surface of the gasoline; thus the current of air caused rapid evaporation or "gasifying" of the liquid, and this was not infrequently augmented by heating the gasoline by running through it a pipe *D*, through which a portion of the hot exhaust gases passed, or by jacketing the air pipe *C* and passing part of the exhaust gases through the jacket, thus warming the air. As the gas formed in this way was much too rich—that is, contained too large a proportion of gasoline to ignite and burn properly in the engine cylinder—an extra air inlet was necessarily fitted, or else the regular air inlet was made adjustable. The usual practice was to use the extra air inlet, *E*, placed either in the tank, as shown, or in the pipe leading to the inlet valve. The adjustable air valve was controlled by hand, and had to be changed every time the speed of the engine varied to any considerable degree. And as the gasoline level in the tank became lower, the gasoline became heavier and less volatile because the lighter portions naturally evaporated first. Ultimately there would be left in the bottom of the tank a thick, sticky mass that was, of course, rather worse than a nuisance. As the gasoline level sank, the extra air supply had to be continually changed to suit the conditions—that is, the heavier and less volatile the gasoline became, the more air had to be taken in through the regular opening, so as to create a sufficiently strong current to evaporate the gasoline.

The wick carbureter followed the surface carbureter and was practically the same thing except that the gasoline was

soaked up by a wick and the air drawn through or over the wick, from which it took up or evaporated the gasoline. While in some respects an improvement on the original surface carbureter, the wick carbureter possessed practically all the failings of the other, most of them, however, being present in a lesser degree.

The surface carbureter was found to be too primitive for even the early motors, and though it was much improved by the addition of constant level chambers and other devices, it was practically abandoned in favor of the jet or spray carbureter, the type now in use. The principle of operation of this form of carbureter is shown in Fig. 2. Perhaps the easiest way to understand the operation of this carbureter is to follow the course of the gasoline as it goes through. Through the small pipe *A* gasoline flows from the main supply tank to the float chamber *B*, in which is a float *C*, made of hollow metal or of cork. Attached to the float is a needle valve *D*, the valve seat being in the opening through which the supply of gasoline enters. It will be seen that as the gasoline enters the float chamber it must raise the float, and when the float has risen sufficiently high, the valve seats itself and stops the inflow of gasoline. The height to which the gasoline rises before being shut off is governed by the length of the valve stem, which is usually adjustable. If any gasoline is taken from the float chamber, the float at once falls and reopens the valve until the original level is restored.

From the lower part of the float chamber a passage *E* leads to the spray nozzle *F*. The valve and float in the float chamber are so adjusted that the gasoline level is maintained a little below the opening in the spray nozzle *F*. Now suppose that the gasoline supply is turned on and flows through pipe *A* into the float chamber until the normal level is reached and the valve shuts it off; some gasoline will have run through the passage *E* and, in accordance with natural laws, will reach the same level in the spray nozzle *F*—just

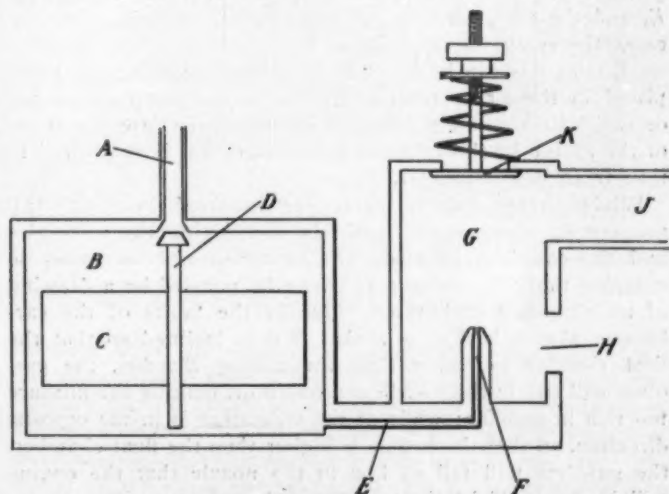


FIG. 2.—DIAGRAM OF FLOAT FEED CARBURETER.

below the opening. The motor is now started, and as the piston commences the suction stroke, a partial vacuum is created in the cylinder, the pipe *J* leading from the carbureter to the cylinder, and in the mixing chamber *G*. In this way air rushes in through the main air inlet *H*, and at the same time the gasoline automatically commences to flow from the nozzle *F* for the following reasons: When the carbureter is

at rest the air pressure on the surface of the gasoline at the spray nozzle *F* is exactly the same as the pressure on the surface of the gasoline in the float chamber *B*, and so the level of the liquid is the same in both. When, however, a partial vacuum is created in the mixing chamber *G*—in other words, when part of the atmospheric pressure is removed—the pressure in the float chamber, being undiminished, forces the gasoline to flow out through the nozzle. The gasoline meets and mechanically mixes with the air entering through the air inlet, the shape of the nozzle being such as to form a fine spray. The "mixture" passes to the cylinder of the engine through the inlet pipe *J*.

The area of the air opening *H* is so proportioned with relation to the area of the opening in the spray nozzle that when the engine is running slowly the proportions of gasoline and air taken in will be correct—that is, the mixture produced will ignite promptly and burn completely, without smoking or depositing soot, in the cylinder. If, however, the speed of the engine is increased considerably the amount of gas required is, of course, increased correspondingly and the suction becomes stronger. More air and more gasoline will be drawn into the mixing chamber; but the gasoline supply will increase more rapidly than the air supply, and if no preventive means were employed, the mixture would become too rich in gasoline vapor to burn properly, and a smoky exhaust and a sooted cylinder would result. It is clear that either the amount of air admitted must be increased or the amount of gasoline decreased; and it has been found that the former method is the easiest to compass. An auxiliary air valve *K*, opening inward, is normally held on its seat by a spring of carefully adjusted strength. When the suction of the engine becomes so strong that the gasoline supply increases unduly, the valve *K* is opened by the suction, thus admitting more air which becomes thoroughly mixed with the gas already formed. The stronger the suction becomes the more extra air is admitted; and if the various openings are correctly proportioned—a very delicate matter—the engine will always get gas of approximately correct proportions of gasoline and air.

The pressure exerted by the spring of the valve *K* can be regulated by means of a nut on the valve stem, and this is an important means of adjustment. There is also, as a rule, a valve of some sort for varying the area of the passage *E*, and the main air inlet *H* is sometimes variable. In some cases the spray nozzle *F* is so made that tips with different sized openings can be inserted. A throttle valve, sometimes placed in the air supply pipe, but more commonly in the top or side of the mixing chamber, serves to regulate the speed of the motor by throttling the amount of gas it is allowed to take from the carbureter.

While these are the principles involved in nearly all modern carbureters, the methods of applying the principles and the combinations made are so varied and sometimes so complex that the novice may easily be puzzled by a drawing of an elaborate carbureter. One of the faults of the carbureter shown in Fig. 2 is that if it is inclined so that the float chamber is higher than the mixing chamber, the gasoline will rise in the nozzle and overflow, making the mixture too rich in gasoline; while, if the inclination is in the opposite direction, so that the nozzle is higher than the float chamber, the gasoline will fall so low in the nozzle that the engine will be "starved" by the poverty of the mixture. The greater the distance between the two chambers, the more serious the effects of inclination. By so placing the carbureter that its length is across the car, the inclination when ascending a steep grade would not alter the relative heights of the nozzle and float chamber, but the sidewise tilting of the car, when running with the wheels on one side in a ditch, for instance, would have the same effect.

This difficulty is practically eliminated by placing the nozzle in the center of the float chamber, making the float

of annular shape. Such an arrangement is shown diagrammatically in Fig. 3. In this *A* is the float chamber, and through the center of it passes the mixing chamber *B*, the open lower end of which affords an opening which constitutes the main air inlet, while the supply pipe to the engine leads off from the top. The float, *C*, is a hollow metal ring, or else a cork ring, and is usually hinged at one side as at *D*, an arm *E* projecting and acting as a lever to open and close the gasoline valve *F*. The spray nozzle *G* is placed in the central mixing chamber and the auxiliary air valve at *H*. The principle of operation is precisely similar to that of the carbureter shown in Fig. 2, but the apparatus is unaffected by tipping in any direction.

Even a brief description of the numerous variations in design of carbureters involving the principles referred to would make a good-sized book. The auxiliary air valve is sometimes combined with the throttle; sometimes with the main air inlet; and is put in every imaginable place where a valve could be inserted. Sometimes the air regulation is effected by hand, and sometimes automatically. Sometimes there are two separate mixing chambers, each with its spray nozzle, one chamber being used at low speeds and both together for high speeds. The gasoline may enter at the top, the

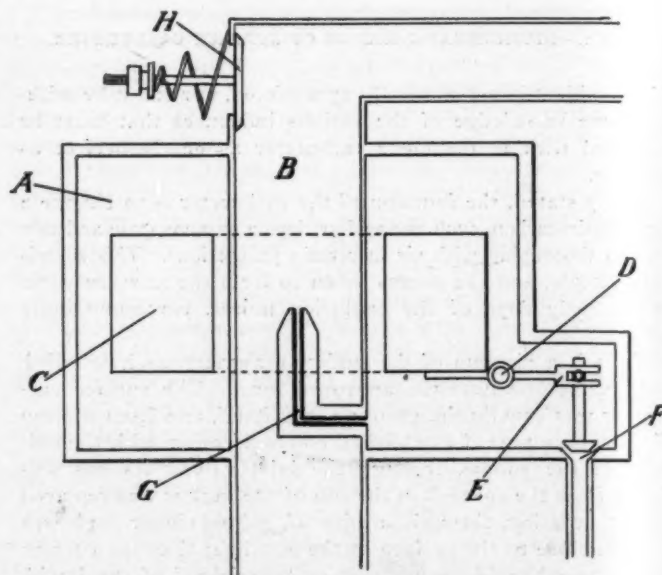


FIG. 3.—DIAGRAM OF CENTER JET CARBURETER.

bottom or the side of the float chamber. Sometimes the gasoline valve is actuated directly by the float, as in the diagrams, and sometimes it is actuated through a set of pivoted arms or levers. Sometimes, there is a rotating fan to thoroughly mix the air and gasoline. Sometimes the carbureter is heated by means of a water-jacket filled with hot water from the cylinder cooling system; and sometimes it has a jacket filled with hot gases from the exhaust. And so on, almost indefinitely.

Then there are carbureters of another class, usually classed as "mixing valves." In these there is no float chamber, the flow of gasoline being regulated by a valve opening or closing more or less according to the velocity of the air passing through; and many other devices are used to avoid the use of the float chamber and its accessories. Like the float feed carbureters, their name is legion and their variety astonishing.

Finally, it may be interesting to know that the price of a carbureter varies more, perhaps, than that of any other part of the car. A carbureter of the cheapest class can be bought for the price of a good dinner; while at the other extreme is found the carbureter that costs almost as much as a set of gas lamps.

MISSOURI MAY CONSTRUCT STATE ROADS.

JEFFERSON CITY, Mo., April 30.—A plan formulated years ago for two great trans-Missouri roads is being revived and is attracting widespread interest throughout the State. The idea must be credited to the late George M. Lane, of St. Louis county, who brought it into considerable prominence when he was advocating its adoption. He introduced in the Legislature a bill for this highway improvement, but it was sidetracked in favor of a measure permitting counties to increase the levy for improving roads. Lane's idea was to build one road from Kansas City to St. Louis, and another from Iowa to the Arkansas line, dividing the State into four sections, from which tributary roads could be built, at the discretion of the various counties. The system was estimated to cost \$1,300,000.

Since the Supreme Court declared invalid the constitutional

could be taken from this quarry to pave a considerable portion of the road close to the prison. The paving expense will be the heaviest part of the expense. The grading can be done at comparatively small cost.

The railroads are sufficiently interested in the project to offer to ship the material at cost, for bad roads in the State are losing considerable traffic that could be handled to advantage were the roads better.

ROADS ARE ALSO FOR AUTOMOBILISTS.

NEW LONDON, CONN., April 30.—Automobiling in this section is looking up, for in the last month a movement, strongly backed by automobile owners, has been set on foot, having for its purpose the preservation of the steel drawbridge over the Connecti-



LONG ISLAND, THE SCENE OF THE VANDERBILT CUP RACE, POSSESSES MANY MILES OF ROADS LIKE THIS ONE.

amendment authorizing counties to make the additional levy for road purposes, the plan is being again agitated, with the prospect that some action may be taken when the Legislature reassembles. The Lane idea was to utilize convict labor. The State of Missouri, however, leases its convicts to contractors for long-time periods, and 1,500 of the convicts best available for road work are under leases which have from three to five years more to run. For the present, or until these contracts expire, there would be not more than 300 men available for this sort of work. The next Legislature will undoubtedly be asked to make some provision whereby some of this labor can be released for highway work.

Missouri, for the most part, is underlaid with limestone of a variety that makes good macadam. In fact, there is a tract close to the penitentiary which is owned by the State and which is practically a big stone quarry. Enough material

cut river when the structure is abandoned by the railroad for the larger bridge now building. It is proposed to have the state maintain the old bridge for vehicular traffic and pedestrians—a very good purpose, for the old ferry at this point is inadequate and barely capable of accommodating the large touring cars. The matter of preserving the bridge has been taken up by the New London Board of Trade, and Senators Brandegee and Bulkeley, of Connecticut, have already consulted the War Department as to the feasibility of allowing the old bridge to remain, and if the department decides that the structure will not impede navigation, it is the intention to secure legislation which will amend the act providing for the new bridge which makes it incumbent upon the railroad to remove the old bridge.

Altogether there is a healthy attitude toward the automobile apparent in this section of Connecticut, where, a few years ago, much hostility was generated by narrow-minded legislators who

sought to make the cars proceed through cities and towns from east to west, or north to south, or reverse, along stipulated highways. These legislators have since been retired, and the cities and towns have found it profitable to invite the automobilist with open arms.

The large number of wealthy New York men having summer residences along the Sound shore hereabouts, who have used automobiles extensively and with apparent consideration of other vehicles on the roads, have done a great deal toward obliterating the former hostile attitude of horse owners. The city of New London has catered to the use of the power vehicles by setting aside one fine stretch of macadam road, covering the greater portion of the Pequot summer colony, and keeping it in the best repair. Speed contests are allowed, not advertised as such, of course; but when the automobilists decide to have a little showing of speed the authorities accommodatingly police the course and warn citizens of the danger of getting in the way. The result of this liberality is appreciable in the large number of cars owned in the city and surrounding towns.

STATE ROADS PLAN SAFE IN R. I.

PROVIDENCE, R. I., April 30.—The Legislature appropriated \$25,000 additional to the sum of \$600,000 for the completion of the state plan of good roads. The original plan was changed by the Board of Public Highways, which committee was brought up short by a country member of the Legislature, who pointed out that the bill was such that the original plans must be carried out. The extra \$25,000 was necessary to build good roads needed to complete trunk lines. When these are completed Rhode Island will have roads second to none in the country.

FEW AUTOMOBILES IN PERU.

"Automobiles are comparatively few as yet in Peru, owing to the scarcity of good roads," writes Consul-General Gottschalk from Callao. Intercommunication between coast cities is very slight, the various towns being separated by stretches of loose sand, which means heavy driving for all vehicles not provided with specially adapted wheels; the roads to the interior over the Andes have been much neglected since the advent of rail transportation a half century ago, and in the cities themselves the streets are usually paved with small flinty cobblestones.

The first automobiles were imported from America in 1905 by the Lima firm of Elguera Hermanos, the makes being Locomobile, Reo, and Olds. Close upon this followed an order for four more, one of which was sold to the municipality of Lima. Some French machines were then imported by private individuals. Then followed the introduction of three American Winton cars by C. Magella, of Lima, and a Columbia electric car by Godoy, manager of the Lima-Callao Electric Tramway. Not long after, the manager of the Eten Dock and Railway at Puerto Eten, L. Marquina, ordered another from the United States. The five heavy freight automobiles, for service between Lima and the port, were introduced from Germany by the firm of Muelle & Dammort.

The Ministry of Public Works at Lima is soon to have one for official touring, and Dr. Pardo's inspection of the recent military maneuvers at Infantas from an American-made touring car will lead, I am told, to the Government house being provided with one of our American machines. In the city of Lima particularly, which is gradually being repaved with Belgian block, there should in a few years be a decided increase in the number of cars in use. There is also talk of certain prominent merchants ordering a delivery car or two as an experiment. This diversified use of the motor car at a time so very near its introduction to the Peruvian public promises well for the future of that line of trade here.

Freights on cars imported from the United States are of course high, still they can compete with the rates from Europe. The cars themselves and their legitimate accessories are free of customs duties.

AUTO WOMEN SHOPPERS.

CLEVELAND, O., April 23.—Cleveland has long been famous for having a larger percentage of women drivers than almost any city in the country. The first women drivers were wives of prominent factory officials and managers of garages who had every opportunity for thoroughly learning the machines, and soon other women followed their example, until last year it was no uncommon thing to see a big touring car filled with women only, skimming along the boulevards or threading the congested business districts on shopping tours. Thousands of other women have viewed these sights with envious eyes. They opine that they are just as smart as the other women, and if Mrs. So-and-So can handle a big car and take her friends out riding, there is no reason why they can't do it. The result is that the woman automobile shopper is out in force. She looks over the automobile advertisements in the daily papers and makes the rounds of the salesrooms in about the same frame of mind that she would if she were shopping for a new bonnet. Usually Madame has a friend with her. They admire the upholstery and the finish of the body, but as a rule they don't know any more about what makes the car go than a baby does about astronomy.

The writer happened in a store the other day and wasted half an hour waiting for an opportunity to talk to a manager, who had corralled—or been corralled by—two women shoppers. The manager started at the beginning and carefully pointed out the engine, the carbureter, the ignition system, and control mechanism. He showed them a section of a valve and explained at great length that the valve parts were "umsteen thousand point carbon" and that the valves were placed in the top of the head in the most accessible position. One of the women then asked to be shown the carbon and the other inquired what the valve was for anyway.

Without waiting for the salesman to get his breath, the first shopper remarked that the machines all seemed to be different and that she guessed she could learn how to run it after she had made her purchase. The second last said, "yes," she had bought a new sewing machine a short time before and it seemed terribly complicated at first, but now she could run it just lovely, and it would probably be very easy to learn to run the auto. "But of course," she added, "we wouldn't think of buying until we have seen how the car runs."

The salesman took the cue: Would the ladies have time to go for a ride?

They seemed to hesitate—were almost startled at the idea, but it didn't take them two seconds to make up their minds; they would, with pleasure.

The writer had seen these same women out riding with another dealer earlier in the day and with still another one the day before. A shrewd dealer will soon learn to recognize this class of shopper just as the wise floor walker in a department store gets wise to the class of women who have party gowns or expensive hats sent home on approval the evening before a party and then find that they don't like the article the next day. But until the garage managers do catch on to this comparatively new dodge, a lot of apparently wealthy women—whose husbands can barely pay the rent, let alone buy an automobile—will enjoy the pleasures of many park rides and the dealers will have nothing to show for their time and gasoline.

Some English automobilists are agitating a movement for the adoption of a code of signals to be used to indicate the intentions of drivers with regard to direction. Horn signals are suggested to inform all on the road, whether automobiling or not, exactly what the intentions of the signaling party are. The following signals, it is thought, would be easily understood: For a car going straight ahead, one quick blast, repeated with an interval between, as often as necessary; for turns to the right, two quick blasts in rapid succession, and for turns to the left, three short blasts; for backing, one long-drawn-out blast.

LANCIA'S LUCK RETURNS IN MONACO DASHES.

By W. F. BRADLEY.

MONTE CARLO, April 17.—The final day at Monaco resulted in a victory for the Italians, *Fiat XIII.* carrying off the Prince of Monaco Cup, value \$2,000, and \$1,000 in cash, in face of French and British opposition. The event was for the mile and kilometer championship, the time for the mile being taken with a standing start and the kilometer with a flying start, open to all craft having won in their class races.

There were three rounds, the first one being for boats up to 26 feet, competed for between Baron de Cater's *Seasick*, driven by an Itala motor, and *La Rapière*, the French champion. *Seasick* got ahead from the start and beat the *Rapière* easily, her time being 3:36 for the total distance, 2:25 2-5 being for the sea mile and 1:10 3-5 for the kilometer. This created a world's record for the kilometer over a sea course, the speed being equivalent to 31.3 miles an hour. The still water record for the same distance belongs to the 1905 *Dubonnet*, Delahaye motor, in 1:06 1-5 (33.8 miles an hour).

The second round, for boats up to 39 feet, brought together *Fiat XIII.*, *Calypso*, a 40-horsepower Mors, and the *Yarrow-Napier*. *Fiat XIII.* handily won in 3:04 3 1-5, *Calypso* being second, and *Yarrow-Napier* third.

The round for boats up to 59 feet brought together *Delahaye*, *Dubonnet*, *Pampa*, *Mercedes W. N.* and *Mercedes D. L.*, and resulted in a win for the *Delahaye* in 3:58.

There were thus three boats left to run in the final, and a keenly disputed race was witnessed. *Fiat XIII.*, known here as Lancia's boat, owing to the Italian champion being frequently on board during the races, came in first, *Seasick* was second, and *Delahaye* third. The official result was:

1. Fiat XIII: Motor, Fiat; hull, Taroni.....	2:25	1:11 4-5
Average on kilometer 27.5 miles an hour. Total. 3:51 2-5		
2. Seasick: Motor Itala; hull, Teller & Gérard..	2:26	1:15 4-5
Average on kilometer 29.7 miles an hour. Total. 3:41 4-5		
3. Delahaye: Motor, Delahaye; hull, Brosse & Touché	2:35	1:16 2-5
Average on kilometer 27.5 miles an hour. Total. 3:51 2-5		

Enormous enthusiasm prevailed on the termination of the race, Lancia especially, who had had charge of the engines

of *Fiat XIII.*, being enthusiastically cheered by the large crowd. The victory of the Italian craft is more remarkable in view of the fact that a few hours before the race the *Fiat* was in collision with the *Delahaye* and smashed in her bows so badly that she commenced to sink. She was hastily hauled ashore and put under repairs, the work only being completed about half an hour before the start of the race. *Delahaye*, being a solidly constructed steel craft weighing seven tons, was but little the worse for the accident, though the indent caused in her hull may have affected her speed a little.

Sales are reported to have been good during the meeting, quite a number of orders being placed for engines and hulls. Several of the racers changed hands, among them being *Antoinette IV.*, sold to M. Braunbeck, a German publisher, who will enter her for the Kiel regatta; the *Yarrow-Napier* was sold to Lord Montague, of Beaulieu; Chevalier Florio bought the *Cafit*, and Baron de Caters became the owner of the *Mercedes D. L.*

"THE RACE FROM FLAG TO FLAG."

From Miami on the Florida coast to Nassau, New Providence, is about 200 miles, and an auto boat event, to be known as "The Race from Flag to Flag," will be a feature of next winter's Southern automobile and power boat circuit. Of course W. J. Morgan is the man behind the idea, and he has just returned from a visit to Nassau, where conferences with Sir William Grey-Wilson, Governor-General of the Bahamas, resulted in promises of co-operation from that source.

It is planned to have the race open to the world, over a course that is out of a direct line taken by the vessels plying between the two ports. The contest has been given the catchy name of "The Race from Flag to Flag"—that is, from American to English soil. During Mr. Morgan's visit Sir Grey-Wilson called a meeting of the Government officials of the Bahamas and the project was thoroughly discussed.



FIAT XIII, LANCIA AT THE MOTOR, WINNING PRINCE OF MONACO CUP AND KILOMETER WORLD'S RECORD AT MONACO.

HELPFUL TO THE MAN WHO DRIVES HIS CAR.

General Troubles with Spark Coils.

Continuing the subject of "the peculiarities of the vibrating spark coil," given at brief length in the last issue of *THE AUTOMOBILE*, some of the general troubles encountered in coils by automobilists present a subject full of live interest to owners and drivers. *Autocar* (Eng.) from which we made quotations last week, amplifies the subject in its current issue with the following list of things commonly encountered by users of the vibrating coil:

Looseness of platinum screws in the bridges. Whether these are bound with a lock-nut or nut, they offer a resistance to the primary circuit.

Armature rubbing against the guide screw. This restricts the speed of the armature. Allowance is made for this in some armatures by making the hole in the armature through which the guiding screw passes slightly larger than the screw stem.

Shorting of the secondary current to the coil support angles or ears, due to the screws which hold the angles to the case being too long and projecting inside.

In the case of four-cylinder coils (not waxed in entirely) the ebonite top breaks away, owing to the screws which are passed through the case into the ebonite top chipping out pieces of ebonite, and so losing their hold of the top. This is very often caused by the windings getting loose, and may be caused by a jar to the coil.

Breaking of the primary wire between the communication screws on the ebonite top and the terminals, and between the communication screw and the bobbin itself.

Breaking of the flex wire between the bobbin (high tension) and the terminal.

Internal switch troubles, due to wax entering the switch and greasing the metal contacts.

Buttons on the armatures (which draw down the platinum blade) getting loose and causing erratic striking of the platinum blade. In the case of Castle distributor coils we have known this to be the cause of knocking in the engine.

Button of the armature shorting on the platinum screw.

Stiffness of distributor armatures—in those cases where it is of springy material and has no spring underneath to help its return movement. This stiffness causes misfiring at high engine speeds.

Instances have been known of coils bubbling the wax out, but in most cases this has been where ordinary coils have been used for distributor purposes. In several Basse-Michel distributor coils, with the bobbins waxed separately, all the insulation was off the bobbins and melted down to the bottom of the box. In tracing the cause of this, it was found to be due to the coil being placed inside the bonnet near the motor.

In large, heavy two, three and four-cylinder coils the wooden cases sometimes split, especially where angles are screwed to the wood. As an opposite example of this, a well-known French coil is made this year with the wood of the case and front flap a full half-inch thick. The top has hinges and the front flap hinges are much stronger than usual. Where flaps in covered-in coils are used, the hinges nearly always work loose, and the same fault is noticeable with the top lids. This is accounted for by the thin wood used in the case construction, which necessitates small screws being used to attach the hinges.

To Remedy a Leaky Carbureter Float.

The best way to locate a leak in a carbureter float is to place the float in boiling water, when the gasoline vapor and air will issue out in the form of bubbles. Care should, however, be taken to see that all gasoline is removed from the exterior of the float before bringing it within the proximity of a fire. After locating the leak and making repairs, at times a slight leakage will follow which is particularly hard to locate, and which is due to small porosities in the drum of the float. The permeating qualities of gasoline demands that these shall be closed, else the float will slowly fill again and lose its buoyancy in the float chamber. Should this fault make itself evident, treat the whole float with a coat of nickelplating. This will be found to be effective in closing the pores better than solder, and as it is evenly distributed by the plating process, the balance of the float itself is better preserved.

Working Pits for Private Garages.

An inspection and working pit that is suitable for all sizes of cars should have about the following proportions: Length, 9 feet; width, 2 feet 6 inches; and the depth should not be less than 4 feet. The bottom and sides should be properly bricked or cemented, the latter preferably on account of being more easily cleaned, and the floor should have a slight inclination toward one corner for drainage. Where it is possible to run a drain pipe from the bottom to an outside drain it should be done. The cover should be constructed of stout planks, two inches thick, each separate, so that any proportion may be removed as desired, and they should be fitted into a rebated frame. The above-described pit is very well adapted to private garages, and when the garage is ample enough to accommodate two cars, should be located on one side, so that when the cars are abreast one will be immediately over the pit. Another thing, the pit should be on the side of the garage nearest the light, so as to dispense with artificial light (unless it is electricity) as much as possible.

Mending Cracked Water Jackets.

A method of mending cracked water jackets that has given entire satisfaction is described in the *American Machinist* by W. L. McL., as follows: First, a strip was made about 3-16 inches thick and 1-2 inches wide, to completely cover the crack, following it wherever it went. This sometimes required nice blacksmith work. The patch was then clamped over the crack and the whole put under a drill. One-quarter-inch holes were drilled about half an inch apart along each side right into the jacket. The patch was removed and while the holes in the cylinder were being tapped, those in the patch were enlarged and countersunk. The strip was then riveted on and hot water with a liberal supply of brine was applied inside at 100 pounds pressure for three or four hours.

Shoulder on New Clutch Leather.

The cone of a clutch which has been fitted with a new leather may not be pushed all the way home in the flywheel drum by its spring owing to the thickness of the leather. In time the pressure and wear on the leather will leave a slight shoulder that may prevent the cone entering far enough to prevent slippage of the clutch. In a case of this kind the cone should be centered in a lathe and the shoulder removed with a file or sandpaper, after which the leather should be dressed with oil.

Importance of the Maintenance of Lubrication.

A very important element in proper care is the maintenance of sufficient lubrication, since it is lubrication that nullifies wear. A sufficient supply of oil must be fed uninterruptedly to all working parts. If the oil supply gives out, the piston will stick, which means an inevitable wait for the motor to cool while oil must be procured. When starting out, one should always investigate personally the supply of gasoline, oil and water, for no matter how trustworthy the man who fills the car, no one is infallible.

Tire Chains Should Go in Pairs.

It is obviously bad practice to attach an anti-skid tread or a tire chain to only one of the driving wheels of a car. While this may serve to give a little additional traction on muddy roads or wet city pavements, the tendency to side-slip is greatly increased owing to the difference in traction between the two wheels; while one wheel grips the surface the other spins around. It also strains the differential.

MASSACHUSETTS MAY RAISE THE SPEED LIMITS.

BOSTON, April 30.—The Committee on Roads and Bridges of the Massachusetts Legislature, having charge of the preliminary steps in all automobile legislation, has reported to the House of Representatives a bill increasing the speed limit from ten and fifteen miles to twelve and twenty in city and country, respectively. The bill also includes many other changes in the law, particularly in the penalties. It is based to a considerable extent upon the compromise bill which was reported by a sub-committee to the full committee, but it contains, in addition to the main features of the compromise measure, a number of new provisions which have not appeared heretofore this year in the suggestions for legislation, and which were not brought up at the hearings held several months ago. Some of the new provisions are in the interest of the automobilists, while others are of a restrictive nature.

The main point of an increased speed limit has been favored, and a statutory definition of the distance over which an automobile should be timed for the purpose of ascertaining if it is exceeding the limit allowed by law is also included. In the country sections, where twenty miles an hour is allowed under the bill, the "trap" must be a quarter of a mile long, while in the thickly settled or twelve-miles sections the "trap" must be one-eighth of a mile in length. The speed at corners, crossings, and curves is limited to eight miles an hour, and the bill contains, in condensed form, a paragraph defining the much-disputed phrase "thickly settled or business part of a city or town."

The punishment section of the compromise bill under which cases of unintentional violation of the law, or in which extenuating circumstances are shown, could be placed on file, has been amended by the insertion of a clause providing a fine not exceeding \$100 or imprisonment for a term not exceeding ten days, or both, for attaching a number plate to a car to which it does not belong, or deliberately obscuring the figures on a number plate with intent to disguise the identity of the machine. This is the same punishment as for operating a car after the revocation of a license or certificate of registration, the clause relating to which remains about the same, the only change being that when a person is convicted for a third or subsequent offense of this character and his license or registration or both are taken away, he cannot secure a new license or certificate of registration for thirty days. The former provision was for a suspension for fourteen days. Under the other part of the punishment section, where reckless driving is dealt with, the committee has included driving by a person under the influence of liquor, and the punishment is a fine not exceeding \$100 or imprisonment for not more than six months. A license or certificate of registration revoked under this clause cannot be reissued for at least sixty days. The former provision made the time thirty days.

Two new sections, numbered 6 and 7 in the bill as reported, appear to have been included for the benefit of the police. Section 6 reads as follows:

"Any person who, while operating or in charge of a motor vehicle, shall refuse when requested by a police officer to give his name and address, or the name and address of the owner of such motor vehicle, or who shall give a false name or address, or who, when signaled to stop by any police officer in uniform or who displays his badge conspicuously on the outside of his outer coat or garment, shall refuse or neglect so to stop, or who refuses on demand to produce his license to operate and his certificate of registration and to permit said officer to take said papers in hand for the purpose of examining them, shall be punished by a fine of not less than

\$25 nor more than \$100." Section 7 of the new act reads: "Any person who shall own or control a motor cycle, and who, when requested by a police officer, shall refuse or neglect to give any information which it is within his power to give, and which may lead to the identification or apprehension of the person who was driving such motor vehicle on the occasion inquired about, shall be punished by a fine of not less than twenty-five nor more than one hundred dollars."

A change which is in the interest of the automobilists is made in the part of last year's law relating to the establishment of special rates of speed by local authorities. The automobilists desired to have the right to make these special regulations taken away from the local authorities altogether, and their efforts were seconded by the Highway Commission. It was found, however, that there existed very strong opposition to any legislation which should deprive the towns and cities of any rights which they now possess over their own highways. The law has been amended, however, so that one of the most objectionable parts is eliminated. Under the law as it now stands a protest can be entertained by the Highway Commission against a local regulation only if it is made within fifteen days after the regulation had been promulgated. Because of the necessity of securing a certain number of signers to petitions, it was impossible in some cases for the automobilists to present their protest within the given time, and therefore the local regulations went into effect without being reviewed by the Highway Commission. In the bill which has been reported, the time limit for the presentation of protests is removed, and they may be presented at any time.

If the bill, as reported, is passed by the Legislature without amendment, the privileges of non-resident automobilists will be considerably curtailed. Under the present law, which was passed last year, they are permitted to operate their machines without a Massachusetts registration, and with the number plates of their home state for a period of fifteen days. In the bill now before the House of Representatives this time is reduced to seven days. Under the proposed amendment it would be practically impossible for a person registered in another state to use his machine in Massachusetts except for passing through, as the seven days would not be long enough for an extended visit. This is in line with the desire of the Highway Commission to bring all the automobiles in use in the state under its jurisdiction. This part of the bill is likely to meet with strenuous opposition from representatives from places which are popular summer resorts, for the necessity of a Massachusetts registration, if an automobile is to be kept here more than seven days, may act to keep away some tourists.

NEW JERSEY'S FEES TO BE OVER \$76,000.

TRENTON, N. J., April 30.—During the first month of operation of the new law, applications for licenses in New Jersey have been running from 40 to 60 a day. Under these circumstances Commissioner of Motor Vehicles J. B. R. Smith will have a difficult task to watch the applicants, and determine whether they are users of stimulants, and whether they are fit persons for registration under the requirements of the statute. It will mean a great deal of hard work to personally examine these applicants, and Mr. Smith will find that the new automobile law has vastly multiplied his duties in the Secretary of State's office.

Mr. Smith estimates the receipts under the law will be about \$76,000 the first year. The expenses of the department will be

about \$20,000, for which the Legislature has appropriated \$10,500, so that the total revenue to the state should figure somewhat more than \$60,000. The estimate of the receipts is based on the assumption that there are 17,000 motor vehicles in the state. A license fee of \$5 is charged for all over 30 horsepower and of \$1 for all under that power. Making the average fee \$3 the total of \$51,000 from this source is arrived at. This is increased by \$25,000 by operator's fees.

WANT OBNOXIOUS LAW REPEALED.

NEW HAVEN, CONN., April 30.—Local automobilists are preparing a monster remonstrance which will be presented to the ordinance committee of the board of aldermen at its meeting next month. Their complaint is based on the following, which was passed by that body recently: "No automobile shall be kept or stored in any building that has not been licensed for such purpose by the fire marshal." This will prevent all those who own autos from keeping them in barns and sheds which have been erected for that purpose, unless a special license is secured from the fire marshal, and the petitioners will ask that the ordinance be repealed. As it now reads, electric and all other machines would be included. This section is a part of the general ordinances passed last year.

Foremost amongst the petitioners will be several members of the aldermanic body who are enthusiastic automobilists, and they will undoubtedly be supported by other members of this body, who will represent many of the most influential citizens of the city.

SPECIAL OFFICERS TO APPREHEND.

COLUMBUS, OHIO, April 30.—Chief of Police O'Connor, of this city, has a scheme to catch autoists who disregard speed regulations. He proposes that the patrolmen be provided with bicycles with speed indicators to follow the fast-flying automobilists and register their speed. In this way proof could be secured of the infraction of the law. "I believe that by the use of these speed measures we could punish many reckless drivers," says the chief. "The trouble is we can't get evidence. A policeman arrests a man whom he charges with exceeding the speed limit, and it is up to him to prove this. He has to estimate the speed roughly, and may be certain the chauffeur was going 25 miles an hour, but when he gets on the witness stand the lawyers for the defense will tie him up in a thousand difficulties, making it hard to get a conviction. So a policeman becomes wary about making arrests. We have even had as witnesses railroad men supposed to be able to accurately estimate speed, but still lost the case."

RHODE ISLAND LAW REMAINS SAME.

PROVIDENCE, R. I., April 30.—The Legislature wound up last week without the present speed laws being disturbed. This means that every city, town, and village will make ordinances according to the ideas of the town fathers. The majority of the country districts allow ten miles per hour, and no faster. In many sections preparations are being made to strictly enforce the law, especially in the southern part of the State. The cases, however, if carried to a higher court, usually result in an acquittal for the defendant.

Registration figures in this state show that the 1,600 mark is likely to be reached during the present week. Up to date 1,580 cars have been registered.

The Office of Works in London has again decided to exclude gasoline cars from Hyde Park during the fashionable hours of the afternoon, electric motor conveyances only being permitted. The drivers of such must, however, wear a special badge in order to permit the police to differentiate between the two types, as nowadays so many gasoline broughams and Victorias are being built with the engine tucked away out of sight.

FREE ALCOHOL BILL STILL IN DANGER.

WASHINGTON, D. C., April 30.—The outlook for the Payne free alcohol bill in the Senate continues dark, and it is very evident that the powerful interests that are opposing the measure have made progress in their campaign to defeat the bill. All kinds of tariff-reducing amendments are being prepared to tack on to the alcohol bill if it ever emerges from the Senate Finance Committee, where it now reposes. Advocates of the bill derived a crumb of comfort last week when Senator Lodge, chairman of the Philippines Committee and one of the leaders in the Senate, issued a strong statement in which he denied the report that he will offer the Philippine tariff bill as an amendment to the free alcohol bill, and also denying the report that he is opposed to the latter measure. His statement was in part as follows:

"I have always been in favor of the principles and purpose of the alcohol bill. I have favored the removal of the tax on industrial alcohol ever since 1888, when provisions to take the tax off alcohol used in the arts were embodied in the substitute for the Mills tariff bill, which Senators Aldrich and Allison reported to the Senate. I am most heartily in favor of the bill which has passed the House, and I sincerely hope it will pass the Senate before the close of this session. I should not only refuse to embarrass it by offering the Philippine or any other tariff amendment, but should resist any attempt of that sort so far as I personally could. The removal of this tax from denatured alcohol would be most beneficial to many large industries, to farmers who have largely petitioned for it, and to all who use explosion motors of any kind.

"There are only two interests which oppose the bill because they fear it would be injurious. One is composed of the makers of kerosene and gasoline, who think that grain alcohol free of tax would be a dangerous competitor, an objection which does not seem to me to be of importance. The other opponents of the bill are the makers of wood alcohol. I have no doubt that the removal of the tax from grain alcohol would put an end to the production of wood alcohol, which I regard as an unmixed benefit. Wood alcohol exists only by the injustice which imposes a heavy tax on grain alcohol and leaves wood alcohol untaxed. Either a tax should be imposed on wood alcohol, or, what is far better, it should be removed from grain alcohol. Great industrial countries like England and Germany are careful to relieve alcohol used in the arts or manufactures from taxation. We ought, without question, to have done the same thing long ago."

Coming from a man who is the acknowledged spokesman of the President of the United States on the floor of the Senate, this interesting statement from Senator Lodge is bound to be effective in many quarters, and the free alcohol advocates are consequently encouraged.

ORDINANCE CONTRARY TO STATE LAW.

SCRANTON, PA., April 30.—At the last meeting of the common council of this city, Councilman Partridge, who seems to be suffering from an acute attack of autophobia, introduced an ordinance regulating automobiles, placing new conditions on owners of machines in Scranton. The proposed measure limits speed to six miles an hour, to be reduced to five when approaching a crossing, a person walking or a horse. It also imposes a \$12 registration fee, requires lights to be carried, prescribes that gongs or other alarms shall be sounded, and that the driver shall stop when requested to do so by the driver of a horse; and imposes a penalty for the first offense of not less than \$10 or more than \$25, and for the second offense of not less than \$25 or more than \$100.

In his excessive desire to restrain the automobile and make its user subject to his will, the honorable councilman seems to have overlooked the fact that most of the provisions of his proposed ordinances are contrary to the Pennsylvania state law governing motor vehicles, which went into effect April 19, 1905, and is now in operation. Councilman Partridge has another guess coming.

A VALVELESS MECHANICAL OILER.

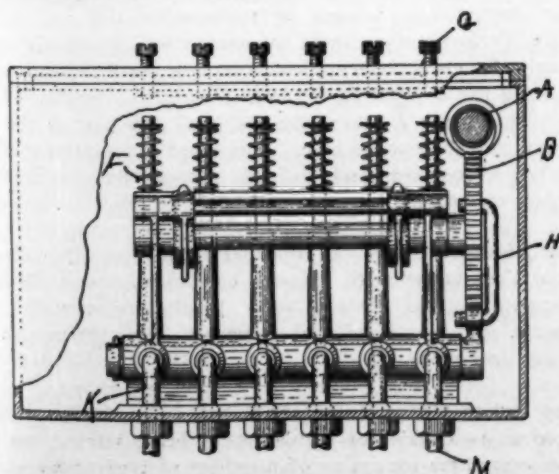
Hancock Valveless Oilers have been designed with a view to simplicity, positiveness and reliability, and the maker, the Hancock Manufacturing Company, 144 East Erie street, Chicago, asserts that it has accomplished all these desirable things in its product. By referring to the sectional cuts, which illustrate Type A, it will be seen that there is a noticeable absence of nuts, bolts, screws, balls, stuffing-boxes and packing in the working mechanism. They may be driven from either side or end, but preferably from the side by belt or chain.

The worm *A* turns the worm gear *B*, which is fastened with a taper pin to the shaft *C*, on which are secured in the same manner the cams *D*. These cams work between the connected U-shape rocker-arms *E*. The connecting portion of the rocker-arms work the row of plungers (one for each feed) in a positive manner downward, and raise them through the spring *F* to a height limited by the adjusting screw *G* in the cover, which regulates the quantity of oil forced, from 1-20 of a drop to 3 drops for each action or cycle of the plunger, the oil openings being as large for 1-20 of a drop as

when 3 drops are thrown; sediment cannot close the openings. The screw *G* is held from turning by an automatic fastening. Directly beneath the plunger is a steel shaft *O*, which is ground and lapped to fit, and which is rocked 90 degrees back and forth by a strap *H*. This shaft is drilled with a series of T-shaped holes opposite each plunger.

As shown in sectional cuts, the plungers have just drawn in oil from the body through the inlet *K*. Governed by the shape of the cam, the plungers stand still until the long part of the T-shaped opening registers with the outlet *M*, at which time the plungers are depressed, forcing the oil to lead, immediately after which the shaft *O* rocks back, closing the outlet opening, and holding any pressure created by piston, which is increased by each succeeding stroke, until an enormous pressure is produced, which is sufficient to remove any obstruction in the lead pipes. It will be noted that the inlet *K* and outlet *M* cannot be opened at the same time, thereby preventing leakage. Bleeder valves are used with the Type A.

In Type B a sight feed is used, and the same principle of operating is retained, an extra set of plungers of slightly larger diameter being used. The oilers are well finished and have a practical working look about them.



FRONT VIEW OF HANCOCK OILER SHOWING MECHANISM.

PHYSICIANS AND AUTOMOBILES.

INDIANAPOLIS, April 30. — Automobiles have been given a thorough and practical test by the physicians of this city during the past five years, and after such an exhaustive trial there are no warmer friends of the motor-driven vehicle than they. Two score or more of the leading physicians of the city now use automobiles in their practice, a large number having displaced horses entirely. Some of the most prominent practitioners have two or three cars, one of which is always kept in readiness for an emergency call.

A comparison between electric and gasoline machines, relative to their practicability, would not be possible, for each has been given the same careful test and has its many adherents. It seems rather more a question of the fancy of the owner than of the real merits of one car over another, so far as local physicians are concerned. For instance, two of the leading physicians, Dr. George D. Kahlo and Dr. A. C. Kimberlin, are divided on the question, the former believing the electric best adapted to the use of the physician, while the other insists that it is the gasoline automobile with which the physician can hope for the greatest success.

Dr. Kahlo was probably the first Indianapolis physician to own an automobile, one of the early electric types; but after using it for two years he returned to the use of horses in his practice, declaring that the electric was not sufficiently developed for the practical use of a doctor. Two years later, however, he returned to automobiles and has been using one of the electric type for the last three years. His automobile is kept at a downtown garage and is delivered at his home each morning shortly after 8 o'clock. It is frequently not returned to the garage before midnight, and whether he is at his office, at home, or the house of a patient, the automobile is always standing in front of the place, ready for service. Besides an actual saving over the use of horse-drawn vehicles, Dr. Kahlo declares that he frequently saves several hours in a day.

Speaking of the cost, Dr. Kahlo said that his automobile cost him about \$35 a month, from \$20 to \$25 of which is for storage, cleaning, charging, and delivering, the balance being an estimate on repairs. Besides this, he estimates the need of a new set of tires each year. The automobile is used constantly, summer and winter.

As strongly in favor of the gasoline automobile as Dr. Kahlo is of the electric automobile, is Dr. Kimberlin, who uses a four-cylinder gasoline automobile designed for physicians. He says that there is great saving over the use of horse-drawn vehicles, besides which he is relieved of the often uncongenial companionship of a coachman. He estimates the cost of gasoline and oil at about \$10 a month, with the cost of repairs a most nominal sum. The secret of the unsuccessful experience of some physicians with the automobile, Dr. Kimberlin holds to be due to the fact that they are not acquainted with their machines. He keeps his automobile at home, and a man who is employed about the house and yard has been taught to care for the machine, but is never permitted to use it, for Dr. Kimberlin says once a man is permitted to use an automobile, he cares for little else besides driving it.

Dr. T. A. Wagner keeps three automobiles, two touring cars and a Knox runabout, which he keeps exclusively for winter use. Dr. R. F. Bigger owns two automobiles, both of the gasoline type.

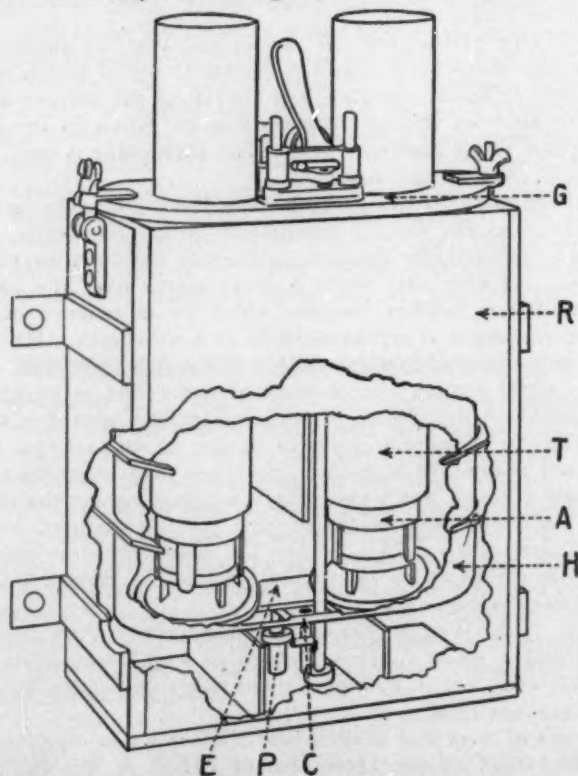
Some of them find another practical use for the automobile, as evidenced by the experience of Dr. B. A. Brown, who, besides being a practising physician, is surgeon for the Big Four Railroad and a member of the City Council. The Olds runabout he placed in service last year is used frequently in going to wrecks, and during his campaign for nomination and election to the office he holds, both campaigns were made in the automobile exclusively.

SOLID FUEL AND GENERATOR.

Acetyvone comes in the shape of sticks—cartridges—which are placed in a generator, adjusted according to directions furnished, and the result is an acetylene light for automobiles and other purposes. It is the patented product of the Acetyvone Company, with factory at Niagara Falls, N. Y., and offices at 38 Park Row, New York City, and its composition is a mixture of calcium carbide and foreign matter, forming a homogeneous mass, and molded into sticks of a suitable size. The principal and emphasized claim of its manufacturers is that only that determined surface which is automatically placed in contact with the water generates acetylene gas, the generation taking place gradually and in direct proportion to the consumption. Other advantages claimed are that the production of gas stops immediately the composition is removed from the water, thereby preventing gas accumulation; freedom from incrustations of residue; and simplicity of operation and control.

Illustrated in the outline drawing is the generator, the interior arrangement of which is shown in detail. The vertical tubes hold the sticks of Acetyvone. These tubes are double, *T* representing the outer tube, and *A* the inner tube, which holds the sticks of composition, and which rests on end on a grid at the bottom of *A*. The generator proper is in two parts, the shell *R*, or lower part, being the reservoir, and the upper part *G* being the generator proper. The gas is formed inside the bell *H*, only in sufficient quantity to feed the burner, and a steady flame is produced that needs no regulation, it is claimed, after being lighted. In operating the cock is opened by raising the lever *L*, and the carriage *C* allows the tube, or Acetyvone holder, to drop so that the ends of the sticks rest on the surface of the water. Gas is immediately generated into the bell *H*, from which it flows through a small pipe to the cock *L*, and thence to the burner.

The lamp is made to hold four sticks, which is the full charge, and which is designed to give six hours' light for two burners, either continuously or when lighted from time to time.



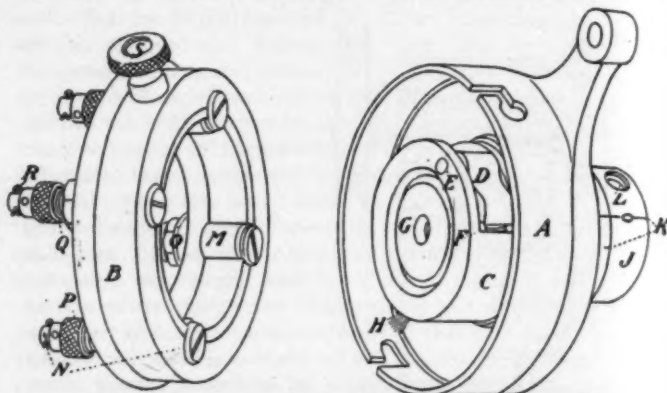
VIEW ACETYVONE GENERATOR, SHOWING INTERIOR.

- A—Tubes, or acetyvone holders.
- T—Outside tube into which A is inserted.
- R—Outer shell, or lower part, forming the reservoir.
- G—Upper part, forming the generator proper.
- H—Bell, on the inside of which the gas is formed.
- C—Carriage, which holds up the tube A.
- E—Base connecting tubes, against which carriage C locks.

A COMPACT IGNITION TIMER.

Simplicity and durability are the cardinal virtues claimed by E. S. Youse, of Reading, Pa., for an ignition timer which he has produced, the salient points of which are described in detail below and illustrated in the line drawing here printed. It is marketed under the name of the "Perfect" timer.

The main body or casing of the timer, *A*, is made of aluminum and carries at its center the driving shaft, of phosphor bronze, upon which is mounted the ring *C*, which carries the contact-making finger *D*, pressed outward by the helical spring *F*. The



YOUSE IGNITION CURRENT DISTRIBUTER SEPARATED.

A, main body or case of aluminum. *B*, pawl or insulating core of hard fiber. *C*, phosphor bronze spindle and contact carrier. *D*, hardened steel contact maker. *E*, retaining pin. *F*, helical spring. *G*, oil wick retaining cap. *H*, oiling wick. *J*, spindle-retaining collar. *K*, contact-indicating lines. *M*, adjustable hardened steel bushing. *N*, contact bushing stud. *O*, lock nut and washer. *P*, locking sleeve for wire terminal. *Q*, locking sleeve spring. *R*, locking sleeve cotter pin. *S*, spring-retaining cover locking device.

part *J* is the spindle retaining collar. A hollow space in the spindle or shaft is filled with oil and wicking; the cavity is covered by the cap *G* and the end of the wick projects at *H* and carries sufficient oil to keep the rubbing surfaces well lubricated. A hard fiber ring *B* fits into the aluminum shell or casing and carries the contact pieces, one for each cylinder; *M* is one of these contact pieces, which are hardened steel bushings, each held in position by a stud *N* fitted with a lock nut and a washer *O*. The locking sleeves *P* for the wire terminals are held firmly against the wires by springs *Q*. By the cotter pins *R* the wire-locking sleeves *P* are retained on the studs. A spring-locking device, controlled by the knurled nut *S*, holds the fiber ring *B* securely in its place in the casing *A*, studs in the ring entering right-angled slots cut in the casing, as the illustration shows. A disk of heavy glass set in the fiber ring closes the front of the timer, keeping the parts free from dust and dirt and retaining the lubricating oil. Lines indicating the commencement and the ending of the contact of the pawl with the contact pieces in the fiber ring are indicated at *K*. The necessary arm with an eye for connection with the regulating lever is made integral with the casing *A*.

This "Perfect" timer can be run equally well in either direction, the only change necessary when reversing the direction of rotation being the reversal of the pawl *D*, which is accomplished by removing the pin *E*, reversing the pawl and placing the pawl spring in the appropriate hole. This timer is regularly made for from one to four cylinders, and will be made for any number of cylinders on order.

The Motor Show at Budapest was unduly influenced by the then unfortunate political conditions, and suffered accordingly, Austria being very poorly represented. Th. Johnston, of the A. C. of America, was present at the opening ceremony.

The Italian Motor Volunteer Corps is gradually attaining perfection, as a series of regulations is being worked out by a special committee consisting of members of the various government offices.

THE NEWS OF THE AUTOMOBILE CLUBS.

The National Capital's Club Is Incorporated.

WASHINGTON, D. C., April 28.—The Recorder of Deeds has received a certificate of incorporation from the Automobile Club of Washington, and the latter is now a chartered body. The incorporators are the five officers of the club, W. C. Duvall, president; Col. C. E. Wood, vice-president; Leroy Mark, secretary; Otto J. De Moll, treasurer, and R. B. Caverly, captain. They will also constitute the Board of Trustees for the first year. The term of existence of the corporation is to be perpetual. The objects of the club, as set forth in the certificate, are to bring together persons who use automobiles in a social way, to secure proper legislation in the interests of automobiles, and to advocate the construction of good roads.

President Duvall, on the eve of awarding the contract for the construction of the club's country home, sent out a circular letter, setting forth the following facts: "The club has made very advantageous terms with the owners of the land upon which the house is to be erected; it will be equipped with every convenience, is splendidly located on the best road leading out of Washington, will be lighted by electricity, have plenty of porch room, the advantage of one of the best cafés, and altogether furnish a homelike place where members will always find a welcome and good fellowship. It is also contemplated to add a billiard room, tennis court, and possibly a bowling alley.

"Without any expense to the club, the Maryland Legislature has been prevailed upon to appropriate a large sum of money to construct a fine boulevard between Washington and Baltimore. A committee representing the club has successfully opposed and defeated the Sims bill before Congress, so that, instead of the speed of cars being lowered as provided in the original Sims bill, it has been raised by a Senate amendment, which we hope will go through both branches of the National Legislature. At the worst, the law will be left in its present state. In this manner are the good objects of the club being accomplished."

Plan to Lift the Speed Limit at Elgin.

ELGIN, ILL., April 30.—The autoists of this town have organized, and are endeavoring to have the speed rate raised inside the city limits. There is in force an ordinance that prohibits turning corners faster than four miles an hour, and six miles is the limit in the city. The owners of machines have set up the contention that four miles is so slow that it amounts to a stop, and is injurious to the machinery. Strange as it may seem, it is a farmer who is a prime mover in having this low rate raised. His name is J. P. Hornbeck and he owns a good machine. He came to town, loaded the chief of police into his car and proceeded to give the town a demonstration. The farmer and the policeman cut every corner in town, showing conclusively that four miles is a ridiculously low limit; that it is nothing more than a funeral pace. The farmer suggested that if the speed was to be kept in force, that the city band be called out to play the dead march in "Saul." The autoists have formed a working organization under the title of the Elgin Automobile Club, with L. B. Garrison president, and J. Thomas secretary. The club is expected to have a membership of 100. There are now 90 machines in town—machines ranging in price from \$1,250 to \$2,000 mostly are used. Last year the number of autos doubled, and there is expected to be quite an increase during the present season. Three Elgin women are good drivers. The farming fraternity is buying and is becoming more friendly to the automobile and its owner. One of the farmers owns a fine White steamer. Elgin is 37 miles out of Chicago on the Omaha line of the St. Paul road, and is the watch-making metropolis.

Albany Automobile Club's Second Annual Run.

ALBANY, N. Y., April 30.—Announcement is made by the tour committee of the Albany Automobile Club that the club's second annual tour will be started from this city, June 21, and will be of six days' duration, covering a distance of 454 miles. The tour, while under the control of the Albany Automobile Club, will be open to other automobile owners who wish to join. It is to be an easy stage run, as pleasure is the object most sought, and it will be through the more beautiful portions of New England with particular reference to the sections where good roads abound. The itinerary, as scheduled by the committee, is as follows: Thursday, June 21, Albany, N. Y., to Rutland, Vt., 96 miles; Friday, June 22, Rutland to Keene, N. H., 76 miles; Saturday, June 23, Keene to Boston, Mass., 88 miles; Sunday, June 24, in and around Boston, no schedule; Monday, June 25, Boston to Springfield, Mass., 101 miles; Tuesday, June 26, Springfield to Albany, 93 miles.

All participants in the run will be expected to stop at the above-mentioned controls each night, where hotel and garage accommodations will be provided. Speed limits are to be strictly observed. All doubtful turns are to be marked with confetti and a list of towns en route with the distances between will be furnished all drivers.

There will be an entrance fee of \$1 for each person participating in the tour, and in order that the committee may secure the best possible rates, entries should be mailed with entrance fee to the chairman of the tour committee, Matthew Van Alstyne, 372 Broadway, Albany, N. Y., on or before May 31.

Dead Horse Hill Climb Set for May 24.

WORCESTER, MASS., April 30.—Under the auspices of the Worcester Automobile Club, an automobile hill-climb will be held on Dead Horse Hill, Leicester, May 24. It is to be under the direct management of Chester I. Campbell, of Boston, who has managed Boston and Philadelphia automobile shows so successfully, as no member of the local club cared to attempt the undertaking. Whether or not the club has secured the permission of the Leicester authorities, who made things so unpleasant for Glidden tourists last year to hold the contest on Dead Horse Hill, cannot be learned. From the announcement it would appear that "Auto Jim" Quinn and his officers were to have nothing to say in regard to the climb. There is now a tentative list of twenty events, nineteen of which are for stock cars and one open to all vehicles. The climb will be held under the rules and regulations of the American Automobile Association.

Although the club members have not taken as much interest in the affair as last year, and it was confidently believed it would go by default, the sentiment during the past few days has been strong enough, it is said, to warrant the officials in selecting a manager.

Hoosier Capital's Club Now Has 100 Members.

INDIANAPOLIS, IND., April 29.—The Indiana Motor Club, recently organized, is growing rapidly. At a meeting held one night last week it was announced that the membership, consisting of forty charter members, had increased to 100 members, and that 150 shares of stock had been sold. The club is planning for a program of motor-boat races on Decoration Day, to be held at Broad Ripple Park, where the new club house will be erected. Complete plans have not yet been made for the events, but will be announced in a few days. The building committee of the club is still at work on plans for the club house, and as soon as completed, work will be started, and it is expected that the club house will be occupied early in July.

CLEVELANDERS CAN REGISTER AT HOME.

CLEVELAND, May 1.—Secretary Goddard of the Cleveland Automobile Club went down to Columbus last week and obtained the consent of Secretary of State Laylin to handling all the license tags and numbering under the new Ohio automobile law for Cleveland and vicinity through the Cleveland Automobile Club. The club rooms will be the headquarters for registration, and all operators, whether members of the club or not, can make their applications and secure their numbers in this way instead of sending to Columbus. Secretary Goddard will have copies of the new bill for distribution and will be able to explain the features of the new law to those who are not acquainted with it. This arrangement will be a great convenience to Cleveland drivers and it will be inducement for many strangers to call at the club rooms and get acquainted.

There is talk that there may be another session of the Ohio Legislature next fall, and in that event the Cleveland Automobile Club is planning to work through some changes in the present automobile law, and in good roads measures. One peculiar feature of the present Ohio law is that, while it was provided that the money acquired through licenses is to go to the good roads fund, no appropriation for its expenditure was made by the Legislature; and the money will accumulate until this can be put through.

Secretary Goddard has suggested that if there is to be another session of the Legislature it would be an excellent piece of work to take the Ohio Roads Commissioners on a little automobile junket through New York State, New Jersey, and Massachusetts, and show them the good roads in these States. It could be pointed out to the Commissioners, and to the people at large, that the money for these roads was raised by indirect taxation and that it did not fall upon the farmers or on the communities, as is the case in Ohio. If the farmers become interested in the advantages of the Eastern system, there would be very good prospects of putting through a law in Ohio similar to those in the Eastern States, and the work of road improvement could be carried on with more energy and more effective results.

Immediate improvement in the condition of a number of Cleveland's streets is demanded by the Cleveland Automobile Club. At a recent meeting President Sholes appointed a Good Roads Committee, consisting of W. P. Murray, E. H. Parkhurst, and W. L. Colt, and a campaign for street improvement has been actively inaugurated. The committee secured the assistance of the press, and, with photographers of the leading dailies, is making tours about the city, taking pictures of the worst places. These are shown up in the columns of the daily papers, with strong editorials calling attention of the city authorities to the bad condition of the streets. Investigation shows that, while the city is doing considerable work of repairing streets, much of it is of an inadequate character. Some particularly bad conditions were found along the Heights boulevards and in the park system, which have always been supposed to have fine roads. It appears, however, that some of the latest-made drives were improperly constructed and heavy teams have been driven over them in the winter until they are soft and full of ruts. All the facts will be presented by the committee in its report, and the club, with its 500 members, will make a vigorous shout for better conditions.

Rochester A. C. Has New Working Secretary.

ROCHESTER, N. Y., April 30.—H. Seymour Bentley has been elected secretary of the Rochester Automobile Club, and will in the future devote his entire time to the duties of his office. The new quarters of the club, at 25 Plymouth avenue, one-half block from Main street in the center of the city, are amply fitted up for the accommodation of members and guests. Tourists will receive a cordial welcome at all times, and the

secretary will be pleased to render any assistance in his power. The secretary's office is now connected with the surrounding country by telephone, and tourists in trouble are at liberty to call Main 4267.

At a recent meeting of the Board of Governors, President Harry S. Woodworth was re-elected as the club's director in the New York State Automobile Association, and the date for the annual meeting was fixed for May 10. Rochester motorists are waking up to the value of organization in furthering their interests—especially in the prevention of unjust legislation and the securing of improved streets and highways—and it is expected that the membership of the club will be doubled this season.

Numerous plans were discussed at the club meeting which will prove of special value to automobilists. It was decided to erect more signboards in the vicinity of Rochester and to have these of a more durable nature than those heretofore used. The club would be glad to have automobilists notify its secretary where signs are needed in this vicinity.

One of the most interesting matters discussed was the practicability of holding a fifty-mile road race over a twenty-five-mile course this fall. It was finally decided to submit the plan to the club. Syracuse enthusiasts have already pledged a large amount of money in case the event is held, and Buffalo automobilists are also very enthusiastic over the idea.

A resolution was adopted directing the secretary to write Mayor Cutler, calling his attention to the exceedingly bad condition of many of the asphalt streets and asking him to hasten their repair as promptly as possible.

Rockford's Club Is Prosperous and Active.

ROCKFORD, ILL., April 30.—There are 200 automobiles in this city, and nearly all the owners are members of the Rockford Automobile Club, a well-organized body of automobilists. Everett Baynes is president and Cary Dickerson secretary. There are three garages in town, and among the dealers all the leading makes are represented. During the present season there has been considerable changing from the lower-priced to the more costly machines.

The result of one case at law has turned out to the great advantage of a large number of automobile owners in this city. A driver who outraged humanity itself—crowded a man and his wife off the road, upset the vehicle, injuring both occupants, but never stopping to offer aid—has been worsted in a damage suit carried to the Appellate Court and will be compelled to pay \$2,000 damages. Decent, fair-minded auto-car owners are all saying, "Served him right!" and the decision has had a salutary effect all around.

CLUB DOINGS IN GENERAL.

CHICAGO.—At a meeting of the directors of the Chicago Automobile Club held last week, resolutions were adopted putting the club on record as unalterably opposed to reckless driving on the public highways and urging upon its members the utmost courtesy and consideration for other users of the road. Resolutions were also adopted stating that the club is equally opposed to the petty and annoying persecution to which some of the most careful and considerate members have been subjected in various localities through the laying of police traps and otherwise. An arrangement was made by the Board of Directors with Sidney S. Gorham to act as special counsel for members of the club who are arrested, charged with violations of the speed ordinance. Mr. Gorham will be prepared to furnish bail at any time.

BROOKLYN.—At the regular meeting of the Long Island Automobile Club, held last week at club headquarters on Cumberland street, it was formally decided to open the season with a tour of the borough, Prospect Park, and the boulevard. The parade will not be confined to members of the club, but every owner of an automobile in Brooklyn will be asked to participate. Date will be announced later.

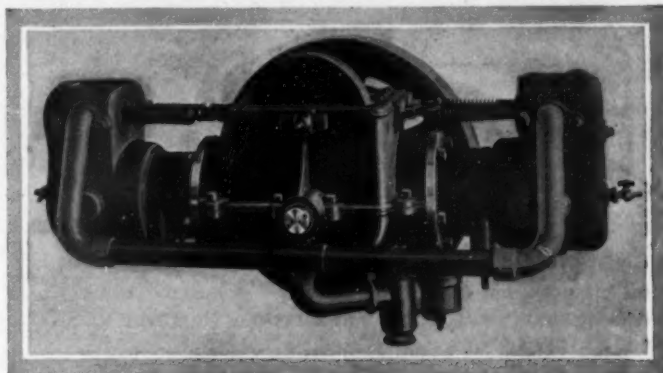
A SUCCESSFUL MICHIGAN DELIVERY CAR.

IN the line of light delivery cars, platform trucks, and sight-seeing 'buses, the Rapid Motor Vehicle Company, of Pontiac, Mich., has established an enviable reputation. These cars have passed successfully through the try-out stage, and are now being sold and operated extensively in many of the larger business sections of the country. The company has just moved into its new manufacturing plant, and after a brief time necessary to set its house in order, the output will be greatly increased, as orders are now waiting ahead of the ability of the factory to turn them out. This new factory is a large two-story building, 200x300 feet in size, built entirely of concrete blocks. Inside it is supplied with full machinery for turning out every part used in building cars, and it stands to-day as one of the largest and most complete plants devoted to the construction of commercial cars.

The Rapid people have not attempted to go beyond the 1½-ton wagon for the present season, preferring to keep within the field of what they consider will make the larger demands upon their manufacturing resources, as they say the tendency at this time seems to be for a wagon to take the place of the ordinary delivery and express wagon. The cars made by this company may be divided into five classes, in which two chassis designs are used, and may be enumerated as follows: An inclosed-top delivery wagon; an express-top delivery wagon with sides open, and protected with a strong wire screen; an open car, with regular wagon body, but without a top; a platform truck with "stakes," and a passenger or sight-seeing 'bus, with canopy top. These various wagons are made in two sizes, with different chassis

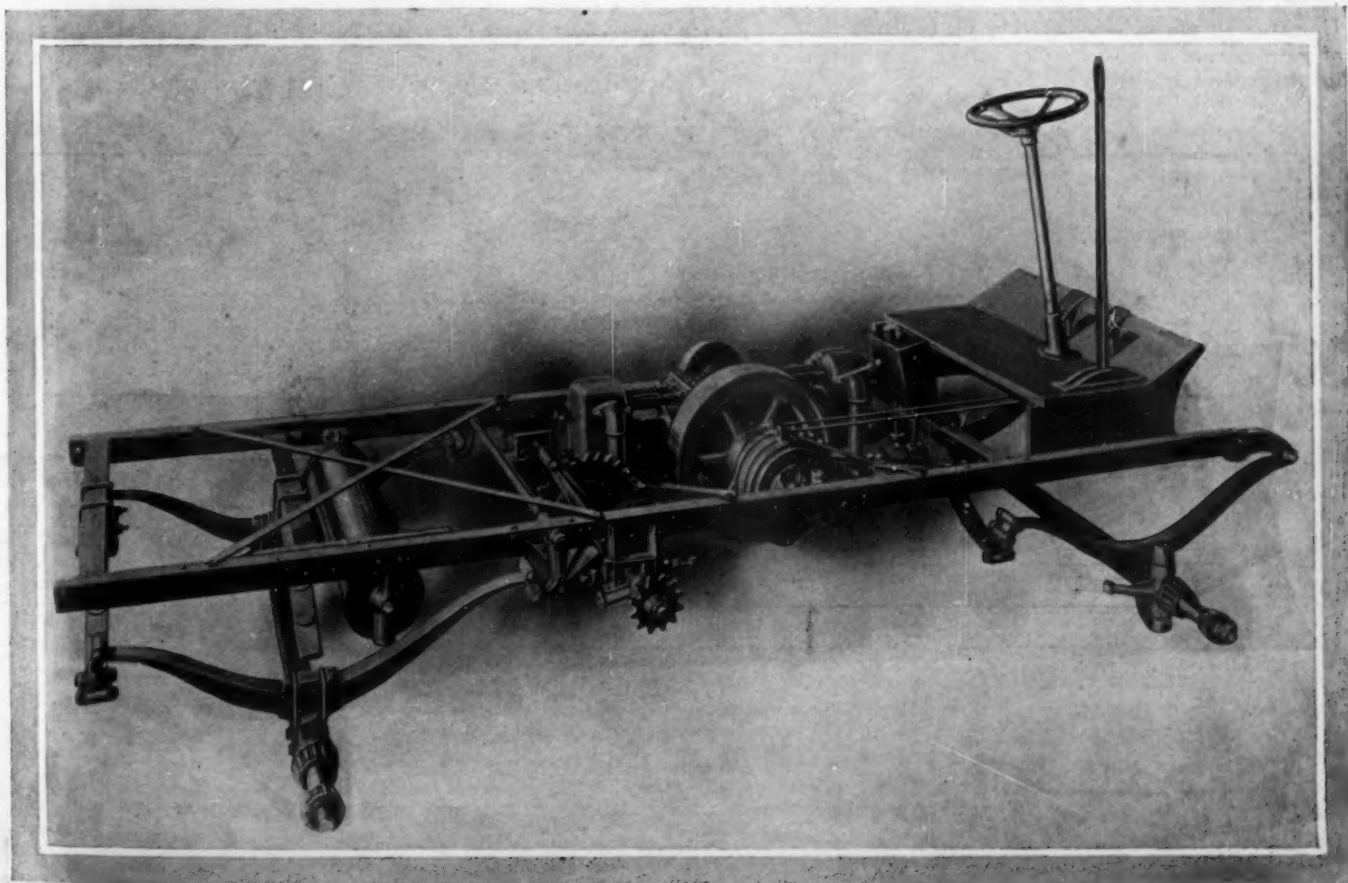
for each size, which are rated to carry 2,000 pounds and 3,000 pounds (paying load), respectively.

For motor equipment the horizontal two-cylinder is used. The cylinders are carried lengthwise on the left-hand side, with a continuation of the crankshaft at the right carrying the planetary gear set. The drive is from this by a single chain to the countershaft, and then by double side chains to



RAPID COMPANY'S MOTOR—DOUBLE-OPPOSED CYLINDERS.

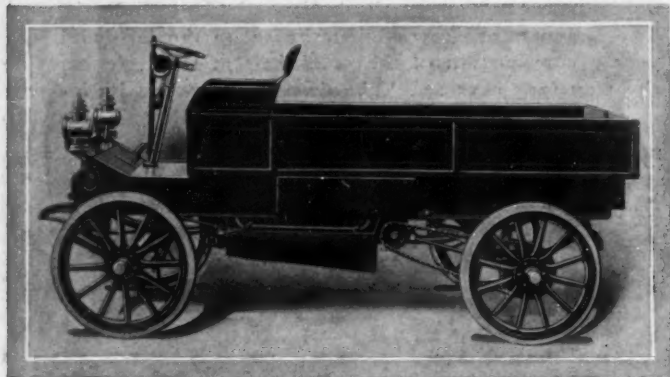
the rear wheels. The cylinders are of 5-inch bore by 5-inch stroke, and each is made with the cylinder wall, head, water-jacket, and valve-ports integral. The valves are mechanically operated. Jump-spark ignition is used. The transmission is of the two-speed and reverse planetary type and the final



CHASSIS OF DELIVERY WAGON MANUFACTURED BY THE RAPID MOTOR VEHICLE COMPANY, OF PONTIAC, MICH.

drive is by double chain. Steering is by wheel on top of slightly inclined column.

The wheels are the wood artillery pattern, 32 inches in diameter, and are equipped with three-inch solid tires. Wheelbase is 90 inches. Angle section steel is used in the frame, and a double platform spring suspension has been used. Agencies are being rapidly established, not alone in



RAPID DELIVERY WAGON WITH OPEN BODY.

this country, but in Europe as well. A number of cars were recently shipped to Italy, and a second shipment to Sweden will go forward at an early date.

NEW YORK CITY FATHERS PATRIOTIC.

Future purchases of automobiles by the City of New York for use by heads of the different municipal departments are to be confined to American makes of cars, under a resolution adopted last week by the board of aldermen. The resolution also fixed a maximum price of \$4,000 apiece for all machines bought. The resolution was adopted upon the recommendation of the finance committee. The board then authorized Dock Commissioner Bensel to buy two cars, one to cost \$2,500 and the other \$4,000. Hereafter all automobiles owned by the city must bear the initials of the department to which they belong, and must be used only for departmental business.

SOME NOVEL EXPERIMENTAL TREADS.

Many interesting experiments in special tire treads are being conducted in a large and well-equipped plant at 88 Gold street, New York, where the Healy Leather Tire Company not only manufactures and applies its steel-studded chrome leather covers for pneumatic tires, but is making a variety of special forms of anti-skid treads. The latest experiments are in the direction of a flat band of rubber 3-8 of an inch thick and three inches broad vulcanized to a strip of chrome leather which is riveted to the tread of the leather-covered tire. This strip is very flexible and has a slight concavity that creates a suction on the road surface sufficient to reduce very materially the tendency to side-slip and skidding.

Another special tread which is just now being experimented with is a modification of the foregoing. A leather envelope which is vulcanized to the tire shoe has a series of staggered brass shells attached to its tread. These shells are set in a double row and are about three-quarters of an inch in diameter by three-eighths of an inch deep. They are open at their outer ends and are packed full of a carborundum composition. The tread of the tire, then, has vulcanized to it a band of thick rubber perforated to exactly fit over the carborundum filled shells and comes flush with their tops. When the wheel rolls on the road the rubber is compressed and the studs are forced down hard upon the surface. If driving an asphalt or greasy cobblestone paving the sharp-edged carborundum prevents slippage, while on muddy roads the studs themselves serve the same purpose.

The Healy shop is equipped with all facilities to do a large business in all sorts of automobile tire repair work, as well as to put on any kind of tread wanted, but most of its work is in applying the Samson type of steel-studded, chrome-leather treads and the leather covers protecting the entire surface of the shoe, including the heads.

C. J. GLIDDEN IN COCHIN CHINA.

A postal card received from Cochin China reports the arrival there of Charles J. Glidden, on his around-the-world tour. From there he goes to China and Japan, whence he returns to New York, arriving June 19.

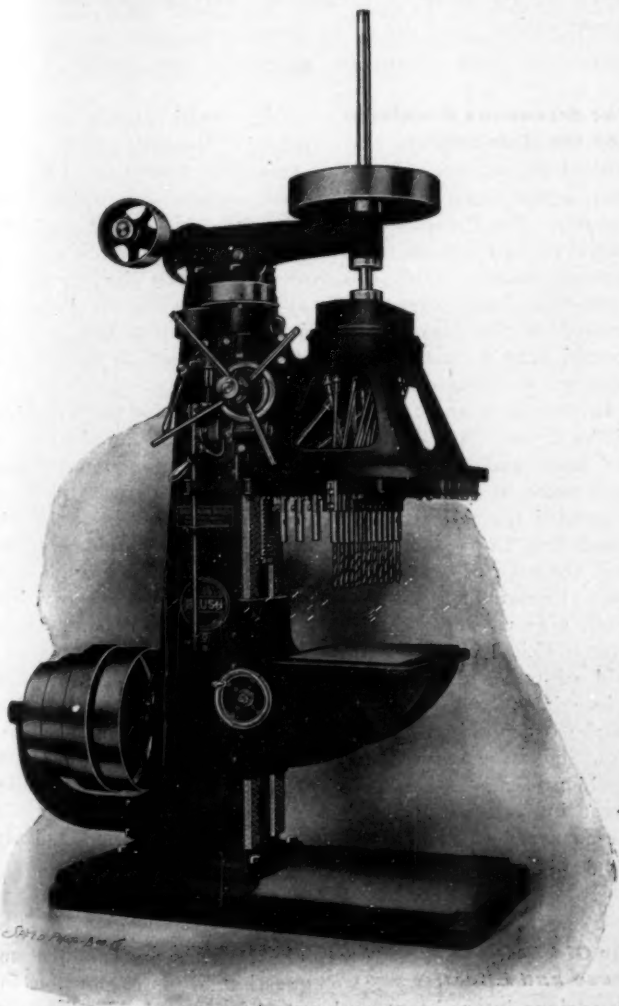


ALL READY TO MAKE MAIL DELIVERIES IN DETROIT WITH RAPID MOTOR CAR COMPANY CARS.

ADJUSTABLE MULTI-SPINDLE DRILL.

Designed and manufactured for the express purpose of the rapid drilling of automobile crankcases, cylinders, pumps, etc., and electrical slate work, a description of the new No. 10 multiple drill, manufactured by the Bausch Machine Tool Company, of Springfield, Mass., will be of interest to the manufacturing trade and others of our readers who are mechanically inclined.

The capacity of this machine is sixteen 3-16-inch to 1-2-inch holes in cast iron or steel, and it will drill sixteen 1-2-inch holes in cast iron, one inch deep, in twenty seconds. It is so designed that either high-speed or carbon drills may be used by means of a two-speed countershaft, and the capacity of the head, rectangular, is 16 by 20 inches. The machine can also be made with circular heads up to sixteen inches in capacity. All spindles are made of tool steel, running in composition bearings, which have for

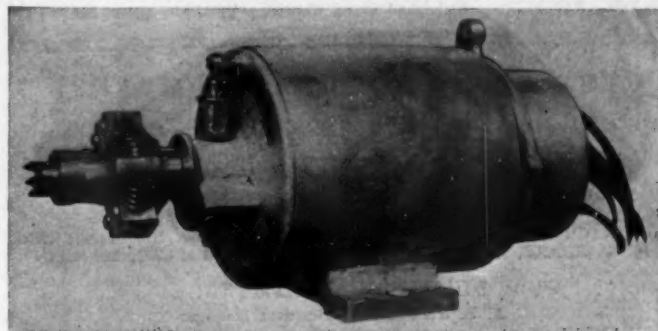


each spindle a vertical adjustment of 13-16 of an inch. The head is counterbalanced on post, and is operated by rack and pinion, and has three gear feed changes, which operate in connection with a quick reverse mechanism. The head has also an automatic knock off, which enables the operator to drill any depth required.

There is also an adjustable table on the post, which is raised and lowered for adjustment by hand, with a rack worm and hand wheel. The base of machine is planed so that in case long work is required to be drilled the adjustable table can be removed from post and the work rest on the face of the base. All bearings on this machine are composition lined, and all shafts and spindles are ground. The countershaft brackets have babbitted bearings with ring oilers. The speeds of the countershaft are 450 and 550 r. p. m. Net weight of machine, with countershaft complete, about 3,600 pounds.

A LATE DESIGN IGNITION SYSTEM.

The Wilson Improved Ignition System, manufactured by the Drake Electric Company, 1344 Michigan avenue, Chicago, consists of modern design low-tension multipolar magneto, in combination with plain non-vibrator coil or coils, corresponding to the number of cylinders in use, which can be twelve if necessary, as



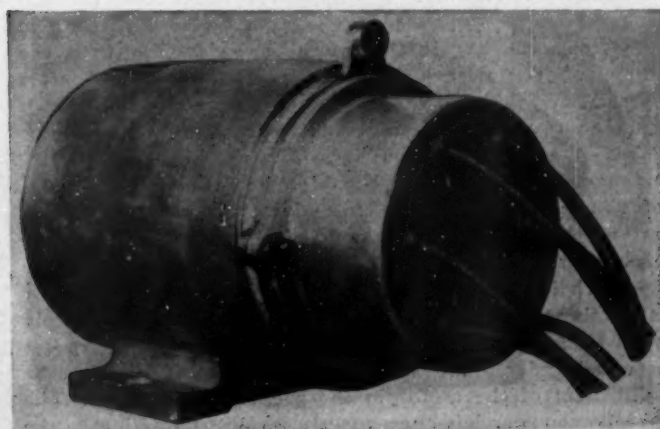
WILSON IGNITER AND CLUTCH TO CONNECT WITH CAMSHAFT.

the magneto has six poles and is driven direct by flexible couplings, same speed as engine shaft.

The timer is of the simple make-and-break type, having individual interrupting points corresponding to the number of cylinders in use, and is mounted on an outside extension of the field yoke, so the timing of the ignition is accomplished by shifting the fields in the magneto casing. The timer contact points are of large surface and mounted on plungers, which are actuated by piano steel compression springs, with the design of making them accurate at all speeds.

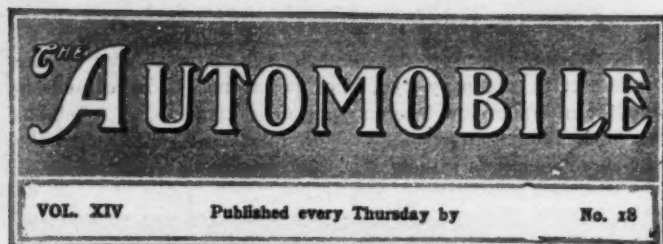
The coil is of special design and insulation to suit the wide range of speed necessary for motor cars and the consequent variation of the voltage produced in the magneto circuit, and is so constructed that the assembly and wiring is all accomplished in the top on the outside of the wax, making it very accessible and the different sections interchangeable, if necessary. The general construction of this ignition system eliminates vibrators from the coil and primary circuit and distributors from the secondary high-tension circuit.

An important claim set forth by the manufacturers is that the magneto is strictly a low-tension one, whose armature windings



WILSON IGNITER SHOWING WIRE CONNECTIONS.

are of very large wire, No. 13, B. & S., or about 3-32 of an inch in diameter, which makes the internal resistance of the armature very low, and makes it impossible to burn out the windings of armature with any output the magneto can give, or even a short-circuit, and is strong enough so that it cannot be broken or affected by vibration. The magneto is suitable for make-and-break or jump spark ignition on the same engine by using a double-throw switch in the primary or winding.



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The Puzzle of Horsepower Ratings.

In the automobile trade, for purposes of sale and exchange, the horsepower of a car is usually taken as the basis of cost comparison. There are exceptions to this, of course, as in the runabout class, in which it is usually assumed that the machine is equipped with a motor powerful enough to give satisfactory service. In the touring car class, however, the catalogue horsepower varies considerably for the same carrying capacity of a vehicle, not only as between one make of machine and another of similar size, but as between various models of an individual builder. The result is that the intending purchaser is often bewildered in reaching a conclusion as to what car to buy. In making the round of demonstrations he may find that one car of comparatively low horsepower will apparently give as good road service as one of a much higher rating. The reason is simple enough, for the catalogue horsepower (assuming that it is accurately given) almost invariably means the horsepower of the motor developed under brake test and without any relation to the employment of the motor in the propulsion of a car. The brake horsepower has consequently no direct relation to the effective horsepower—the power delivered to the rims of the driving wheels of the car. The difference between the two is made up of variables, such as relation of power to car weight (dead load), power economy of design of the entire plant, and mechanical efficiency of the latter, which may vary widely in machines of the same design with variations in accuracy of machining and care in assembling.

And even the demonstration is not at all a safe measure of power. Cars of exactly the same type will give widely different performances, under different conditions of trial which

may not be casually apparent. The weather, the condition of road surfaces, the kind of tires used, the quality of fuel, the skill of the driver, all have their influences on the result. For these reasons we are inclined to the belief that, no matter whether indicated horsepower, brake horsepower, or effective horsepower may be used in cataloguing cars, the result will never entirely meet the needs of the purchaser.

The present designation of cars is merely a "nominal horsepower" rating and answers its purpose as a basis of discussion or general comparison, just as did the nominal horsepower rating of tramp steamships in older days, which was merely a commercial classification for purposes of sale.

The moral is, do not purchase a car on horsepower rating alone. There are many other qualities to be considered, and almost any car in the market is capable of the legal rate of speed. The general reputation of a builder is frequently a more certain guide to satisfactory service than the horsepower rating.



The Strenuous President and the Automobile.

One would expect that the Chief Executive of these United States, because of his established strenuous disposition, would have taken to the automobile with unhesitating alacrity. But President Roosevelt has surrendered gradually, and even now his use of the motor-driven vehicle is more or less spasmodic. Only the other day, when the remains of John Paul Jones were laid away in Annapolis, the President arrived at the Naval Academy in an automobile, and, of course, used it on the return to the train which carried him back to Washington.

In France it has been an expected event for the President of the French Republic to attend the big automobile race of the year, and in Germany when the Gordon-Bennett race took place in that country, Emperor William was the most interested spectator of all. There is no question but that the Vanderbilt Cup Commission will invite the President to attend the race of next October, and should he accept he will see a strenuous spectacle that will fill his whole being with as much glee as he exhibited in climbing the heights of Santiago. This 1906 race for the Vanderbilt Cup will possess a field of powerful mechanical monsters such as has never before been brought together in this country nor excelled on the other side. The Elimination trial for the American cars, September 22, might be the event which the President would prefer to attend, though 'tis likely that his great interest in international affairs will cause him to select the five-cornered motor battle involving France, Germany, Italy, Great Britain, and America.



The Old Law of Cause and Effect.

The reckless automobilist unquestionably is responsible for the various intermittent outbursts of motorphobia that crop up here and there. But "two wrongs never made a right," and the fanatical manner in which police officials in city and country are embracing the opportunity of arresting every automobilist who exceeds in the most minor degree the exceptionally moderate speed limits is going to cause the pendulum to swing the other way in the near future. Persecution of law-abiding automobilists is becoming so marked in some localities that the fair-minded are protesting against this unfair discrimination, which makes the many pay heavy toll for the sins of the few, who should and could be singled out and properly fined and punished. The recent action of the Chicago Automobile Club and the dealers' association of that city in engaging special counsel to defend their members against unjust discrimination by police officials is a step in the right direction toward organized legal resistance to encroachment on the individual rights of automobilists.

HOW THE AUTOMOBILE HELPED IN SAN FRANCISCO.

HELPFUL is an inadequate word to express the prominent part played by the automobile in the earthquake that destroyed San Francisco and other parts of California. Immediately all the available automobiles in San Francisco were pressed into service, and many motor-driven vehicles afforded an avenue of escape from the burning city for their fortunate possessors. From the coast are coming the stories of what the automobile accomplished, and the valuable utility of the motor-driven vehicle was demonstrated in a most convincing manner.

Whitman, the Transcontinentalist, Was in the Thick of It.

The following from L. L. Whitman, the famous transcontinentalist, was received by the H. H. Franklin Mfg. Co., Syracuse, N. Y., graphically describing conditions after the shock:

left San Francisco this morning. We are 118 miles on our way, and if all holds together, hope to reach Los Angeles in a few days.

Yours truly, L. L. WHITMAN."

The above letter was dated Salinas, Cal., April 21, three days after the disaster. Salinas is a small town in Monterey county, some 118 miles south of San Francisco. The Franklin Company later received a dispatch dated April 26, advising that Mr. Whitman arrived safely at Los Angeles.

E. P. Brinegar's Story of the Calamity.

E. P. Brinegar, Winton representative in San Francisco, sent the Winton Company, at Cleveland, O., the following thrilling description of conditions in the stricken city and the good work accomplished by automobiles in ameliorating conditions:



A REMINDER OF POMPEII PERVADES THE VICINITY OF THE RUINS OF SAN FRANCISCO'S \$5,000,000 CITY HALL.

"I sent a telegram to you to-day, but it may be delayed in transit. With my wife, I escaped from the destroyed city of San Francisco after three days of awful wreckage and horror. I got out the old, faithful transcontinental car, threw away the hamper, and carried fleeing people to Golden Gate Park, where thousands slept in the open and watched the destruction by fire after the earthquake had shaken the city.

"The panic of the people was terrible. Martial law was enforced and the soldiers from the Presidio held the city. Many were shot for not obeying orders. I had a rifle shoved in my face by a soldier while I was after people in my Franklin. One driver who refused to obey was shot in his machine. The police pressed into service any automobile they wanted and drove them till they lay stranded in the streets. I can't begin to describe the awful scenes. I put my trunk on the Franklin and, with my wife,

"I presume you are anxious to know of the situation here. Can outline the matter by saying that hell could not be compared to San Francisco at the present time. Our building was within 100 feet of the dead line when the fire stopped. The building was damaged but slightly, being a wooden structure with metallic lath and plaster on the outside. The police and army officials have taken all our automobiles, old and new, and placed them in the hospital and other service; also confiscated parts, tires, gasoline, etc. We are glad, however, to be able to render this service to aid the suffering. I want to say here that without the aid of automobiles the suffering would have been ten-fold, and the loss of life probably much greater. Every available machine has been working day and night, and the owners of cars have done most heroic work. Most of the boys have seen no sleep since the hour of the earthquake. At least 100,000 people are camped

in Jefferson Square, just across the street from our building. The great work done by the automobile in connection with our disaster proves afresh the wonderful adaptability of the self-propelled vehicle. The people of San Francisco will forever bless the men who made the automobile a reality."

What a Woman Saw of the Disaster.

Mrs. G. A. Hawkins, wife of the San Francisco manager of the White branch, wrote from Felton, eight miles from Santa



CAMP-GROUND FOR DESTITUTE EARTHQUAKE VICTIMS.

Cruz, as follows to the White Sewing Machine Company, at Cleveland:

"I telegraphed you yesterday from San Mateo. They would take but ten words. The garage in San Francisco is burned. Automobiles were saved. Your loss is comparatively small if the banks remain solvent. The city, except for the residence portion west of Van Ness avenue, north to the bay, and around the park, is destroyed by fire. The houses standing are scarcely tenable. Ours lost only chimneys, but we left it at once, taking what we could in an automobile to the new house building on the boulevard. We camped there until midnight Thursday. Then Mr. Hawkins became alarmed for the personal safety of the women of our camp. He decided, if possible, to move the automobiles from the temporary station in the Golden Gate Park to Oak-



STREET SCENE SHOWING RUINS OF BUSINESS BLOCKS.

land, communication there having been established. He insisted that I come down here, establish a camp at a friend's ranch, where any one he sends can be cared for, and where I could get into communication with the world outside. I can communicate with him at Oakland. We have a machine and a chauffeur here who will go back to Oakland as soon as necessary. Gasoline is scarce, and oils. Our man was burned about the hands; otherwise no one of the company's employees was hurt.

"All automobiles and wagons possible are taken for military purposes. Your automobiles were in use constantly so long as gasoline permitted, carrying dead and wounded and dynamite.

"Last night here we had our first *real* meal and slept in a partially wrecked house. Everything is reduced to the most primitive state. We have milk and potatoes and smoked meats—luxuries just now.

"If the authorities turn Oakland into a camp, no garage arrangement is possible there. Mr. Hawkins then thought of San Jose, not knowing it is worse off than Oakland. Los Angeles did not suffer, and will probably be his next objective point. The manager there, Mr. Ryus, and Walter White came up to San Francisco in an automobile. I met them on our way downtown yesterday. I did not then know no one could enter the city on that side. They may have got in as far as Golden Gate Park. There the machines may have been seized for military use. You will hear from Mr. Hawkins direct as soon as he is able to communicate. All men have been working since Wednesday morning, with little food and sleep. No one has money. Our host here is well known, and so can get credit. Mr. Hawkins is exhausted, but, though he was weak from his recent illness, exposure has not made him worse. I expect him to collapse temporarily when the strain is lifted. I cannot see any business possible to be done in San Francisco for months, perhaps years. Everything had been unusually prosperous there. Men who counted themselves millionaires Tuesday have lost business and home and property value."

The Experiences of L. H. Bill.

Thomas B. Jeffery & Company, who maintain a branch establishment in San Francisco, were for several days in a state of anxiety over the whereabouts and conditions of their representatives at that point.

Early newspaper reports showed conclusively that their establishment had been entirely destroyed, and no word was heard from their branch manager, L. H. Bill, until the following Monday. Owing to sickness in his family, Mr. Bill had been temporarily residing at Hayward, about twenty-two miles out. He immediately endeavored to get into San Francisco, and by noon of the 18th succeeded in reaching Oakland, but all efforts to reach San Francisco were unavailing, as no one was allowed to enter the city. Mr. Bill's first definite information was obtained about noon on the 19th, when he learned that the Market street store was completely burned out.

Owing to lack of room it was impossible to keep the entire stock at the Rambler garage, and on the morning of the disturbance fourteen cars were at 1331 Market street, eleven at Freed's, on the opposite side of the street, and fourteen at a warehouse on Bluxome street. On this stock was carried an insurance aggregating \$32,800. At the same time there were in the hands of the freight company one carload of delivery wagons and one carload of model 14s. These were destroyed by fire, as were all the cars on Bluxome street and at Freed's bicycle store. Fred Linz, of the San Francisco store, reported to Mr. Bill on the morning of the 20th that during the night the garage on Market street and Freed's place were entirely destroyed by fire. He also reported that the cars at the garage had previously been removed to a safe place near the Park Panhandle.

Upon receipt of this report Mr. Bill attempted to send men in to get these cars, but none of them returned, and he learned that both men and cars had been impressed by the military. The new store and garage at Nos. 125-131 Golden Gate avenue was dynamited in an attempt to stop the spread of the fire. On the 21st Mr. Bill succeeded in reaching the wreck of the Market street store, but was not allowed to enter. A temporary office has been opened at 421 Ninth street, Oakland, and a shipment of new cars and a full supply of parts is already on the way.

How One Man's Car Arrived in Time.

There have been some interesting stories of marvelous escapes from the city of San Francisco. In many of these the automo-

bile has figured prominently. Mr. and Mrs. C. E. Maud, of Monterey, Cal., had gone into San Francisco the day previous to the earthquake for the purpose of attending the grand opera. They were guests at the Occidental Hotel at the time of the disaster, and in looking about for a means of escape from the city they thought of the Franklin car they had recently ordered of G. A. Royer. On going to the garage, located on Golden Gate avenue directly back of the City Hall, they found that the new Franklin had arrived. Hastily filling it with oil and gasoline, they



FRESH MEAT STATION AND CROWD OF THE HUNGRY

hurried out of the city, and as they left fires were springing up and raging in several sections. In some places after they reached the open country it was necessary to secure planks in order to bridge fissures in the ground made by the earthquake. Arriving at Santa Clara, Mr. and Mrs. Maud found their only son safe at Santa Clara College, and they proceeded with all dispatch to Monterey, which was reached after an eight-hour run from San Francisco.

Diamond and Goodrich Branches Were Destroyed.

Both the Diamond and Goodrich branch houses were destroyed. Manager Mathewson of the Diamond branch wired that all the employes of the company were safe, but later the company received another message inquiring whether anything had been heard of other members of the force, indicating that some of the



WAITING IN LINE FOR BREAD AND PROVISIONS.

employees had not been accounted for. The Diamond company maintained a small manufacturing plant to take care of the requirements of the coast trade. The building did not belong to the company, but the machinery and stock were valued at about \$75,000. The stock and goods in the Goodrich company's branch were valued at \$100,000, fully covered by insurance. The Goodyear Tire & Rubber Company maintained an agency, and its loss was only about \$1,500.

Mr. Thomas of Buffalo on California.

E. R. Thomas, the well-known Buffalo manufacturer, narrowly escaped being caught in the San Francisco calamity. He returned to Buffalo last week, grieved at the affliction of 'Frisco's population, but very enthusiastic over the beautiful automobile roads, splendid climate, and beauties of California.

"California is certainly an automobile paradise," says Mr. Thomas. "Three hundred days of the 365 the weather and roads are splendid for automobiling. In fact, the roads, by comparison, with the exception of New Jersey and Massachusetts, are far superior in general to the roads in the Eastern States. The road scenery in an automobile from Los Angeles to San Diego, I believe to be the grandest on this continent. Another fact that attracted my attention was the general courtesy extended by the farmers to automobilists. They would generally give them a fair share of the road to pass, and, instead of a scowl, would meet them with a smile. Mr. Thomas left San Francisco on the last train previous to the earthquake.

L'HOMMEDIU BILL IS DEAD.

ALBANY, N. Y., May 2.—The L'Hommedieu bill is dead. The Committee on Rules of the Assembly by a vote of 4 to 2 has declined to report the measure. The New York State Automobile Association did not make any great effort to have the bill reported, being satisfied to accept for the time being the present law.

ALBANY, N. Y., April 30.—An automobile event of last week was the ordering out of the L'Hommedieu auto-tax bill for amendment into an auto-additional-registration-fee bill, and its reprinting and recommitment to the Rules Committee. The measure has been considered, and there has been some discussion of its provisions by the Rules Committee and a reference of it to the Secretary of State to ascertain what it was estimated the cost of collection of the registration fee or tax would be in extra clerical force, etc. All of this has been under the secrecy of the Rules Committee deliberations, and it is not positive that when the Rules Committee gets the reprinted bill back on Tuesday the bill will be reported. The time is getting short, as the Legislature has adopted its final adjournment resolution and fixed the date of the last session for next Thursday. If the amended bill gets out of the Committee on Rules by Tuesday or Wednesday, and is passed then by the Assembly, it will be lucky. Then it must go back to the Senate for concurrence, where it will be likely to run into the fight over the mortgage tax bill and have a hard time getting any kind of recognition; even if it misses that bill, the end of the session is so near that Senators will be too anxious over what local legislation they may have left to permit anything to get in ahead.

PLANS FOR THE 1906 A. A. A. TOUR.

The 1906 A. A. A. tour will have its beginning in Chicago, but the rules that will decide the possession of the Glidden trophy will not be operative until the cavalcade reaches Buffalo, though there will be trophies for the Chicago-Buffalo section. In the 1,100 miles run from Buffalo to Bretton Woods, N. H., there will be other cups in addition to the Glidden trophy. The route will be across New York State to Burlington, Vt., thence to Montreal, to Quebec, and down to the White Mountains country.

It is probable that the starting date from Buffalo will be July 20, with the beginning at Chicago several days previous. All this was decided upon at the first meeting of the new Touring Committee of the A. A. A., held Tuesday afternoon at the club-rooms of the Automobile Club of America in New York City. Present at the session were Chairman Paul Deming, President Farson, Secretary Gorham, and Messrs. Dill of New Jersey, Myers of Chicago, Hower of Buffalo, Beach of Hartford, and Post, Hedge and Fitch of New York City. A sub-committee on rules was named, to consist of Messrs. Myers, Hower, and Gorham, and Messrs. Dill, Post and Hower will consider the route. It will be remembered that Mr. Dill two years ago made a run from his home in East Orange, N. J., to Quebec.

ACTIVITY IN "GASOLINE ROW."

PHILADELPHIA, April 30.—Activity, spelled with a big A, was the feature of "Gasoline Row" during the past week. No six business days since the advent of seasonable weather have witnessed so many deliveries of new cars to customers. The factory people seem to have "loosened up"—much to the relief of many agents and branch house managers who have been compelled to do some hard talking to put off threatened cancellations of orders. Garage and salesroom employees will surely insist on an eight-hour day if last week's conditions obtain for any length of time. In many establishments the business day ended along toward midnight, and this was continued all week. This week promises a repetition of the rush.

The Quaker City Automobile Company delivered no less than sixteen cars during the week — Pope-Toledos, Franklins and Pope-Hartfords. The Keystone Company turned over nine Autocars to new owners. A score of Ramblers relieved the pressure on Manager Smith and his force of helpers; but unless a similar invoice arrives this week he will be dodging impatient waiters. The Motor Shop distributed a carload of Royal Tourists last week. This is the story all along "the Row." Nor is there any lack of new orders. Many an agent and branch manager along North Broad street last week filed orders for cars which he cannot hope to deliver before August—if then. A prominent "Row" man was heard to predict that 90 per cent. of the year's business will have been done by June 1. After that—a rest.

The Hamilton Automobile Company, which added the Queen car to its line when it became apparent that the demand for Stoddard-Daytons could not be met, is reaping the reward of its foresight. Patrons who contracted for the latter are offered Queens—with delivery within ten days as an incentive—and many of them have agreed to the transfer. Such transfers are frequent in other establishments, and show the wisdom of an agent handling at least two good cars.

The Aldine Garage, a big affair at 2028-2030 Sansom street, back of the Aldine Hotel, is the latest addition to the city's storage places. Henry A. Rowan, Jr., manages it, along with several similar plants and repair shops in other sections.

The Gale runabout has just been added to the list of cars represented in Philadelphia. The South Broad Automobile Company, 729 South Broad street, will handle it.

Charles Strauss, local agent of the Indian motorcycle, at Carlisle and Oxford streets, has added the Yale to his line.

The C. E. Bradley Motor Company, of 258 Diamond street, is disposing of its new two-cylinder 6-horsepower Bradley motorcycles as fast as they can be turned out. The company contemplates an enlargement of its plant to accommodate the increasing business.

The Morton Marine Motor Company, of Third and Milton streets, Camden, is also about to enlarge its plant, the demand for the Morton, 1906, motor having been so great as to render such a move imperative.

THE CLIMB OF "GIANT DESPAIR."

Next in importance on the automobile calendar will be the climb of the mountain at Wilkesbarre, Pa., known as "Giant Despair." This contest will take place on the morning of May 10 and will be a part of the Centennial Jubilee of Wilkesbarre. The entry list closed to-day with an excellent array of cars of all kinds, and W. J. Morgan, who is assisting the Wilkesbarre Automobile Club in the promotion of the climb, predicts that it will rival in importance the famous Mount Washington ascent, Wilkesbarre being so easily accessible to innumerable automobilists from Pennsylvania, New Jersey, and New York.

Arrangements have been made to insure all competitors in the Herkomer competition against liability, fire and accident losses. A sum of 50 marks has to be paid by all starters on receiving their number plaques at Frankfort, and this money entitles them to the insurance, should anything occur.

TURNED THE FIRST SPADEFUL OF EARTH.

BUFFALO, April 30.—By turning up the first spadeful of earth, Saturday afternoon, George N. Pierce personally started the actual work of the construction of the new mammoth plant of the George N. Pierce Company, at Elmwood avenue and the Belt Line crossing.

The company has acquired fifteen acres of land on the site of what was once a corner of the Pan-American Midway. About six acres of the property will be put under roof, providing facilities for building the Pierce cars "from the ground up."

The work of building will be rushed with all possible speed. Within ninety-five working days part of the plant is to be ready for the installation of machinery, and eleven days later, under the contract, the plant will be complete. Three great operating buildings are to be erected. The largest will be known as the manufacturing building and will be 401 feet long and 326 feet wide. It will be one story high, with saw-tooth glass roof, affording daylight in every part of the building.

The second structure will be the assembling building, 160x401 feet and two stories high. The third will comprise a series of shops, the boiler and engine rooms, and is to be 55x376 feet in size, two stories high. In addition, there is to be an office building with a large dome surmounting it. This will be 60x250 feet and is to be called the "Good-will Building." It is to have two stories and a basement, the basement to be given over to lockers and storage for bicycles. The ground floor is designed for the offices of the heads of the departments, and the top floor is for entertainment, either of visitors of the company or the employees. A thousand men will be employed in erecting the buildings, which will be constructed of reinforced concrete.

When President Pierce turned the first sod, on Saturday, there were present Vice-President Henry May, Treasurer Charles Clifton, Secretary L. H. Gardner, and Directors George K. Birge, W. H. Gardner, and William B. Hoyt. Among the others present were George E. Matthews, Thomas Cary, Percy Pierce, F. S. Dey, E. C. Bull, Charles Sheppy, F. B. Humphrey, and J. L. Costello, representing the contractors, the Trussed Steel Company, of Detroit, and others.

"MOUNTAINEER" DISAPPOINTS DES MOINES.

DES MOINES, Ia., April 28.—Within twenty miles of Des Moines, the Reo *Mountaineer* went into the ditch to avoid a mud hole of unusual depth and in endeavoring to get back into the roadway, one of the transmission gears gave way. While there are in our repair box, which we send by express, all such parts, we have had so little call for repairs that the box was left somewhere back in New Mexico and, despite a liberal use of Western Union wires, has not been located. Meantime, we sent to the factory for the spur gear wanted, and it has just arrived.

The Iowa Automobile Club had made extensive arrangements to entertain us upon our arrival in Des Moines, even including a banquet at the Savary Hotel. The members were called together at 4 o'clock Sunday afternoon and, accompanied by a large number of auto owners who were not members of the club, they scoured the country in the vicinity of Des Moines in an effort to locate the *Mountaineer*. Upon discovering the nature of the break in our machinery, I tried to get the club by long-distance telephone, but after an hour's fruitless effort was obliged to give it up.

Of course, being automobilists, most of them have gone through like experiences themselves and realizing our position, freely forgave our absence, but I don't think the Sears-Nattinger Automobile Company, local agents for the Reo cars, will ever forgive us. The company had run an advertisement in the Des Moines papers inviting the public to call at the garage and inspect the *Mountaineer*, and the public did call and has continued to call all the past week.

PERCY F. MEGARGEL.

NOVEL CONTESTS FOR THE OPEN-AIR SHOW.

AN elaborate program, consisting of fourteen events, to be held at Empire City Track, May 24, 25, and 26, in connection with the first open-air automobile show and carnival, under the auspices of the New York Automobile Trade Association, has been issued by the committee in charge of the arrangements.

All the contests scheduled are for stock cars, as per makers' catalogue specifications, although, if desired, lamps, baskets, tops, and mud-guards need not be carried. Where passengers are carried, they must weigh not less than 140 pounds each if they are men, and not less than 120 pounds each if they are women.

Classification of cars entering the contests has been made as follows: Class A, one-cylinder; class B, two-cylinders; class C, four-cylinders; class D, six or more cylinders; class E includes all steam-propelled cars whose horsepower shall be determined on accepted standard formula. This class may enter in all events except where specified otherwise. A list of the events, together with the rules governing same, is appended in detail, as follows:

Rules Governing Competitions in Various Contests.

Flexibility Contest—Open to stock touring cars equipped as sold for four passengers or more, and classified as follows: Classes A, B, C, D, and E. One mile with flying start on a high gear. One-quarter mile with flying start on a high gear. Slowest speed without stopping motor or disconnecting clutch. Not less than two persons to be carried; one to be an official observer. The prize is offered for best percentage obtained by dividing the highest speed by the slowest on high gear and result divided by horsepower and fast speed, by low speed divided by horsepower.

Efficiency Test—The standard to be figured on cylinder displacement as one pint per horsepower hour on standard formula; 1-10 of the cubical displacement. Example: As cylinder 4x5 equals 60 cubic inches, times 4 cylinders equals 240 cubic inches equals 24 horsepower. One pint standard gasoline reservoir will be supplied by the committee with proper attachments to dash. Contestants must be prepared to attach connecting 1-4-inch hose to carbureter. The prize will be given for the highest percentage of the greatest distances traveled per horsepower hour. For classes A, B, C, D and E.

Power Test—Starting on low speed 10 yards from sand pit in which the depth increases gradually. Prizes will be awarded to car in each class covering the greatest distance. For classes A, B, C, D, and E.

Traction Test—Horsepower to be determined as in previous event. Prize to be given for the car making the best performance per horsepower hour per ton mile; based on the following formula: Weight multiplied by speed, divided by time multiplied by horsepower. This test to be run in two events, one for touring cars and one for commercial vehicles. For classes A, B, C, D, and E.

Brake Test—Test 1: All touring cars claiming 40 miles per hour or better, to be given 1-2 mile start and travel marked 1-8 mile in less than 11 1-4 seconds, when brakes will be applied. Minimum distance to count. Brakes must not be applied until car reaches brake line. Cars to be given two trials. Observer to be carried in each car. Test 2: The same rule for all touring cars claiming not more than 30 miles but over 24 miles per hour. Must do 1-8 mile within 18 3-4 seconds under same conditions. For classes A, B, C, D, and E.

Vibration Test—All gasoline touring cars eligible. Will be required to carry standard pail supplied by committee filled with water on any part of car floor selected by owner. Prizes will be given for car covering 200 yards, standing start, with least amount of water spilled. Car must be traveling on high gear before crossing finish line. For classes A, B, C, and D only.

Tug-of-War—This event shall be open for all kinds of cars on challenge, which the committee will hold and referee for all acceptances. The only rule being that cars shall be provided only with any regular and standard make rubber tires. All challenges will be published in program if entered in sufficient time.

Relay Race—Management will accept matches between any makes, providing three cars each are duly entered. Match to be agreed upon by both parties in which each car shall make one lap, stop, discharge passengers, who will transfer to second car, make a second lap, stop, passengers transfer to third car for last lap. Matches made and accepted will be entered in program.

Reverse Gear 75-Yard Dash—In two classes. Class 1: Touring cars to carry five passengers with sliding gear transmission, cover 75 yards from standing start in minimum time in reverse. Class 2: Open to all classes with planetary gear transmission carrying five passengers. This race to be run by time only. One trial. For classes A, B, C, and D only.

Obstacle Race—Two classes. Class 1: All cars over 100-inch wheelbase. Class 2: All cars under 100-inch wheelbase. Open to all cars, barrels, flags, dummy pedestrians, and other obstacles will be placed on the track. Operator covering the prescribed course and touching the least number of obstructions. Prize will be given to car coming nearest to covering prescribed course within specified time.

Driving Test—Open to all cars of classes A, B, C, D, and E. To be standing start. Operator to start his crank motor, then remove his hat, coat, and vest, hanging them on separate pegs provided for the purpose, going 1-2 mile and returning to place of starting,

stopping his car, getting out of the car, putting on his hat, coat, and vest, get in his car, turning around obstacles and returning to the 1-2-mile mark, turning around and finishing at place of beginning.

Chauffeurs' Test for Putting On and Taking Off Tires—All tires must be blown up properly before the start. Cars will be required to go around the track once, keeping together, and upon coming to a stop in front of the grandstand the chauffeur will be told to remove one of the tires and to replace the inner tube. Chauffeurs will remove the tire, replace the inner tube, pump up the tire and travel once around the track, finishing at the grandstand. The journey around the track is simply to test the tire being pumped up properly. The prize goes to the man making the quickest change from the time word is given till the time he is told to make the journey around the track. Standard clincher tires only to be used, not more than six months old. No tire men allowed in competition. No cutting.

Second-Hand Car Race, Open to All Cars selling at less than one-third of the catalogue selling price. Distance, one mile. After this race all cars that participated to be auctioned off to highest bidder, entrant agreeing to sell at price of class in which he enters if higher bid cannot be obtained. Cars selling at less than \$500; at less than \$1,000; at less than \$1,200; at less than \$1,500; at less than \$2,500.

Complete Touring Car—Prize for the best-equipped touring car shown either on the track or in the spaces. Prize to go to the car which is best equipped for a thirty days' tour. Points awarded for horsepower, for size accommodations, accommodations in case of stormy weather, for touring, for complete tools in case of breakdown, for equipment of supplies in case of accident.

Certificates—A certificate will be awarded by the Trade Association to the manufacturer or local agent of the car winning any event, in addition to the regular prize which will be awarded to the contestant. Prizes shall be medals, cups, or other articles selected by the Association of the value of not less than \$20 each. Special cups may be offered for special events later. Entry fee of \$5 for each event, which must accompany the entry. Entries close May 15.

ENTRIES FOR EFFICIENCY CONTEST.

Following is a list of entries received up to Tuesday, May 1, by Secretary Butler, of the Automobile Club of America, for the A. C. A. Two-Gallon Efficiency Contest, to be run on Saturday, May 5. Some additional entries may be expected before the start of the event, as the entry list was not officially closed until Wednesday:

Make.	H.P.	Description.	Entered by.
Frayer-Miller	24	Touring car.	Frayer-Miller Car Co.
Locomobile	35	Touring car.	Albert B. Hilton.
Fiat	20	Touring car.	Hol-Tan Company.
Packard	24	Touring car.	A. R. Shattuck.
Darracq	35	Touring car.	Calvin T. Adams.
Packard	24	Touring car.	A. Ward Chamberlin.
S. & M. Simplex	30	Touring car.	Dave H. Morris.
Franklin	12	Light touring car.	R. G. Morris.
Frayer-Miller	35	Touring car.	F. E. Moskovics.
Frayer-Miller	24	Touring car.	Frayer-Miller Car Co.
Orient buckboard	4	Runabout.	E. P. Chalfant.
Orient buckboard	4	Runabout.	E. P. Chalfant.
Stoddard-Dayton	30	Touring car.	Dwight W. Fardee.
Napier	18	Runabout.	Napier Co. of America.
Franklin	12	Touring car.	Decauville Auto. Co.
Panhard	15	Touring car.	Dr. William M. Folk.
Renault	14	Touring car.	John B. Trevor.
Compound	16	Touring car.	E. H. V. Company.
Compound	16	Touring car.	E. H. V. Company.
Panhard	12	Touring car.	Am. Generator Co.
Leon Bollée	40	Touring car.	Cryder & Co.
Winton	20	Touring car.	J. Parke Channing.
Cadillac	10	Runabout.	Mrs. W. C. Martin.
Cadillac	10	Runabout.	Walter C. Martin.
Berlett (Am.)	24	Touring car.	H. K. Burras.
White	18	Touring car.	Carl H. Page.
Wayne	24	Touring car.	Wayne Automobile Co.
Aerocar	24	Touring car.	Percy Owen.

MANY ARRESTS FOR SPEEDING.

Arrests of automobilists by wholesale have been made in police traps in outlying parts of New York City and its suburbs on several Sundays this spring. Two such traps that have been most successful from the point of view of the constables and judges directly concerned were set in New Rochelle and on the Merrick Road, near Rockville Center, Long Island.

The New Rochelle trap, just beyond the northern limits of the city, had become an old story, and only one unwary traveler was caught, but the police of Yonkers got their usual Sunday quota, which this time included Albert R. Shattuck, ex-president of the Automobile Club of America, whose proud boast it has been that he always drove slowly and carefully in the city and never had had an accident. With five other victims, he deposited \$50 security for his appearance in court on Monday.

NEWS AND TRADE MISCELLANY.

Walter Christie, the star winner of the Atlantic City meet, had the driving wheels on the front of 110-horsepower Blue Streak equipped with Michelin flat tread racing tires.

The Queen of Italy has offered an international cup for the first aeronaut who crosses the Alps in a balloon. The Italian Aero Club is arranging preliminaries for the contest.

Roy Emerson, a rural mail carrier, of Alpena, Mich., has purchased an automobile in which to cover his route. The machine is the first to be used in that part of Michigan for such work.

The Jackson, Church & Wilcox Company is a new Saginaw, Mich., concern, formed for the purpose of manufacturing high-grade machinery and auto cars. The capital of the company is \$25,000.

C. Paul Tracy, a product of the automobile school of the Winton Motor Carriage Company, has been appointed office manager of the company's Pittsburgh branch, under branch manager Earl H. Kiser.

The United States Manufacturers' Company, of Detroit, which makes gasoline engines, has merged its business into a stock company under the same style, having authorized capital stock of \$10,000, all of which has been subscribed and paid in in cash.

A corporation for the purpose of making and finishing castings has been formed at Detroit, under the name of the Detroit Motor Casting Company. The authorized capital stock of the new company is \$25,000, all of which has been subscribed and of which \$2,500 has been paid in in cash.

Work has begun on the mammoth addition to the Winton plant, at Cleveland, and will be pushed rapidly to completion. Having already covered practically all the ground of its property, the company is now compelled to extend its buildings upward, and the new work will mean the addition of a second story to the machine, painting, and varnishing buildings.

In the Automobile Club of America's two-gallon efficiency contest to be held Saturday of this week, there will be five Compound cars, three of which will be entered by owners and two by the manufacturers, the E. H. V. Company. The cars entered by the makers will be driven by D. F. Graham and Fred C. Carter, who represented the factory in the New York Motor Club's economy test held last November.

Two 16-horsepower Compound gasoline engines, arranged tandem, are being installed in a thirty-foot Otto racing boat of five feet beam, similar to one of 16 horsepower that awakened much interest on the Connecticut River last year. The new power plant is expected to drive the boat at twenty miles an hour. The E. H. V. Co., of Middletown, Conn., is installing the engines. There has been a considerable demand for Compound marine motors this spring, and several Connecticut boats have been fitted with Compound engines.

The promises of early deliveries made by the Aerocar people at last winter's shows are being realized, notwithstanding the immense amount of work required to get a brand new plant into smooth operation. Aerocars are now being delivered at the rate of from three to five a day. One day last week there

were fifty cars in the assembly room ready for the wheels, twenty cars in the hands of the testers, and ten in the finishing room, within two days of readiness for delivery.

The Pan American Crude Rubber Company, of Akron, Ohio, was incorporated at Columbus last week, with a nominal capital stock of \$1,000. The incorporators are George C. Allen, F. H. Watters, H. E. Andress, F. E. Whittemore, and E. A. Oviatt, all prominent attorneys except Mr. Oviatt, who is superintendent of the Standard Table Oil Cloth Company's plant. The incorporators are not prepared to make any statement as to their plans, but it is understood that the intention is to handle crude rubber from the south on a large scale.

The Northern Manufacturing Company has closed an agency contract with John Tragardh, at Gotenborg, Sweden, who will handle its full line of cars during the present season. The initial order placed was for a carload of Northern models. The Northern Company also reports having opened an agency in Winnipeg, Manitoba. This will be known as the Northern Auto Company, and will be located at 336 Smith street. Others who will handle the Northern line for 1906 are A. J. Scott, Emerado, N. D., Charles Sidow, of Aberdeen, S. D., and the Curtin-Hebert Manufacturing Company, of Gloversville, N. Y.

It is asserted by the Electric Vehicle Company, makers of Columbias, that chief among the reasons for the rapidly growing popularity of the electric carriage is its desirability as a substitute for the horse-drawn vehicle in many lines of usefulness. For many purposes, especially in cities and their suburbs, which in the past have been supplied by the horse-drawn carriage, the electric possesses many advantages. It is excellent for runabout service, for physicians' use, for calling, shopping and other demands upon the private carriage, and is very practical for a great many pleasure drivers who are not mechanically minded.

Visitors to the factory of the Electric Vehicle Company, at Hartford, Conn., after inspecting the plant, and getting an idea of the various processes that enter into the making of gasoline and electric automobiles, are often favored with a drive about the city in one of the company's demonstration cars. The factory lies adjacent to one of the most beautiful sections of the city, and the route frequently followed leads through Forest street, one of the most beautiful thoroughfares in the country, where may be seen the former homes and grounds of such literary celebrities as Harriet Beecher Stowe, Charles Dudley Warner, Mark Twain and William Gillette, the playwright and actor.

The Carter International Motor Car Manufacturing Company, of Detroit, of which H. Carter is president and general manager, has no connection with the Motor Car Company, which manufactures the friction-drive cars. The Carter Duplex cars now under construction by the Carter International Motor Car Manufacturing Company, located at 98-100 Iron street, Detroit, the first lot of which will be ready for export in three to four weeks, are constructed after inventions by H. Carter, who transferred his patents for the Carter Duplex cars to the Carter Motor Car Corporation, of

Washington, D. C., and Milwaukee, Wis., which has the exclusive rights in the United States. Three-speed sliding gear transmission is used in the Carter Duplex cars.

The Maxwell-Briscoe Motor Car Company has received a number of inquiries from owners and users of Maxwell cars regarding the Glidden tour. C. W. Kelsey, eastern sales manager, says that there will be about twenty entries of Maxwell cars in the tour, and the company has decided to send two delivery wagons to carry spare parts and tires for the competitors who use Maxwells, as well as for conveying light baggage for the Maxwell entrants. Complete lines of extra parts will be carried and the delivery wagons will act as emergency cars to get to the places where any of the entrants may have met with minor accidents or suffered in any way. It is likely that a surgeon will accompany one of the wagons, and the vehicle will be so arranged that it can be converted into an ambulance if necessary.

Details of the test made at the Massachusetts Institute of Technology of the standard Compound engine made by the E. H. V. Company, of Middletown, Conn., have just been made public. The test was made by Prof. Joseph C. Riley, of the Institute staff, on April 5. A floating dynamometer was used, and several tests were made to insure accuracy. The testing-plant of the E. H. V. Company is a very complete one, but for purposes of confirming the readings made at the factory and to see if the factory machines were properly calibrated, the technical test was made. The regulation 295-pound flywheel was used on the engine. At 1,285 revolutions per minute the engine developed 16.1 horsepower. This is materially better than the previous claims made by the company for the same engine. Constructor David F. Graham has never claimed more than 16 horsepower at 1,300 revolutions. The power developed was maintained for a considerable time. The test was made in the Engineering Building of the Institute, at Boston. The engine was selected haphazard from a group set aside in the factory to be placed in stock Compound cars.

No matter what the route finally selected for the Glidden tour this year, it is understood that possibly half a dozen Thomas cars will take part in it. The season is early as yet for entries to be announced, but several enthusiastic owners of "Flyers" here declared their intention of taking part in the trip. Among these are C. A. Coey, of Chicago; C. S. Henshaw, of Boston, and A. V. Hart, of Rochester, N. Y. All of these gentlemen will drive their own cars. Coey's car will probably cause the eyes of the natives to pop out. It is finished in pure white and is trimmed with blue. Coey's monogram is blue, with many grapevine twists in five-inch letters, and is placed on the tonneau proper instead of on the doors. On the dashboard is a shining brass searchlight, an odometer, speedometer, gradometer, and a clock. Several twists to the brass tubing of the French horn add still further to the dazzling effect. The final touch, however, comes in the presence of an eight-chime horn on the left-hand side of the car. To top it off, a keyboard has been arranged and each chime is connected to its proper key with a wire. Tunes that do not require more than a single octave can be played in a manner that places the circus caliope far in the rear.

INFORMATION FOR BUYERS.

The Continental Motor Mfg. Co. is now operating its new plant at Muskegon, Mich., but will also continue to operate its Chicago factory, at Lake and Peoria streets, that city, until fall. The Muskegon plant is equipped with a new and complete line of modern machinery and tools, in addition to that in operation at Chicago. An extensive addition is now being built to the Muskegon shops, which, when completed, will give the company one of the best equipped plants in the country for the manufacture of motors, transmissions, etc.

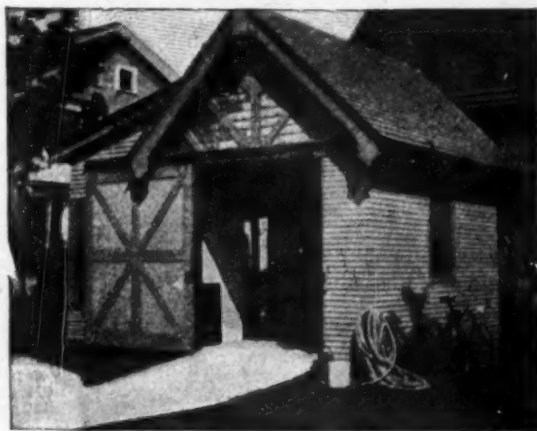
The most popular size of motor manufactured by the Continental people is the four-cylinder, vertical, 45-horsepower, shown in the accompanying illustration, and catalogued as Type "O." In this year's model the same symmetrical general design as shown in the 1905 production of lower power is adhered to, but some changes in detail, necessary to high-powered machines, are made. For instance, the cylinders are offset from the center of the crankshaft, lessening the angularity of the connecting-rod on the working stroke, effecting a more direct thrust on the crankpin and lessening the wear on pistons and rings. The pushrods are operated by levers which are pivoted on bearing shaft at back of case. These levers are drop forgings, fitted with hardened rollers, running against the cams, and are also hardened at the pushrod contact points. This arrangement is made so that the long levers avoid the shock of cams striking directly against the pushrods with the attendant wear and noise. The pushrods are fitted with adjusting caps retained by locknuts.

The general specifications of the motor are those incidental to machines of high-grade construction. Cylinders are cast in pairs with water jackets and valve chambers, the metal of special grade, and they are tested under hydraulic pressure and ground to a mirror finish. Pistons are of extra length, ground, and fitted

with four eccentric expansion rings with lap-joints. Crankcase is of special grade nickel-aluminum alloy, the camshaft compartment being separate from the main case, but cast integrally with same. Crankshaft is drop forged, accurately turned and ground, and has long bearings. Connecting rod is drop-forged steel, bushed with white bronze metal, and fitted with four retaining bolts, lock-nutted and cotter-pinned. Camshaft is high carbon steel and lubricated by splash from case. Induction and exhaust valves are of special nickel alloy, and white bronze is used for all bearings, all of which are scraped and hand-fitted. Each motor is given a thorough test before shipment and required to develop its rated power.

PORTABLE GARAGE.—The question of temporary housing of an automobile at the summer home or seaside cottage is not difficult to solve in view of the convenience and practicability of the portable garage, such as the one herewith illustrated. It is made by Charles H. Manley, St. Johns, Mich., who has been engaged for some time in making portable houses for universities and other large institutions in various parts of the country. The houses are built in sections and are shipped "knocked down." Anyone who can use a screwdriver can put them together, two or three hours sufficing for the job. The best Southern pine is used in their construction, the siding being seasoned and carefully matched, so as to make the house weather and wind proof, only needing painting to give it a finished appearance when set conspicuously on a lawn. The price of this house is extremely moderate.

BALL BEARINGS.—An interesting application of the Hess-Bright type of two-point contact annular ball bearings, as manufactured by the Hess-Bright Mfg. Co., 245 North Broad street, Philadelphia, is made in the built-up crankshafts of the Noble Automobile Syndicate, of Coventry, England. These shafts are forged in sections, two to each throw, and are fitted together on the line of the axis by forming the meeting ends with castellations that fit tightly together within the annular cone of one of the bearing sets and are firmly held together longitudinally by screw bolts having a conical head and a nut of similar shape. The wrists, as well as the main bearings, are carried in the annular ball bearings. Yet another application of these bearings is made by the De Dion-Bouton people, who mount the armature of their ignition magnet on them, using one bearing at either end of the armature shaft.



THE MANLEY PORTABLE GARAGE.

PERSONAL TRADE BREVITIES.

John H. McCarthy, president of the Wayne Automobile Company, of New England, has returned to Boston from Ormond, Fla., where he has been recreating for the past two months.

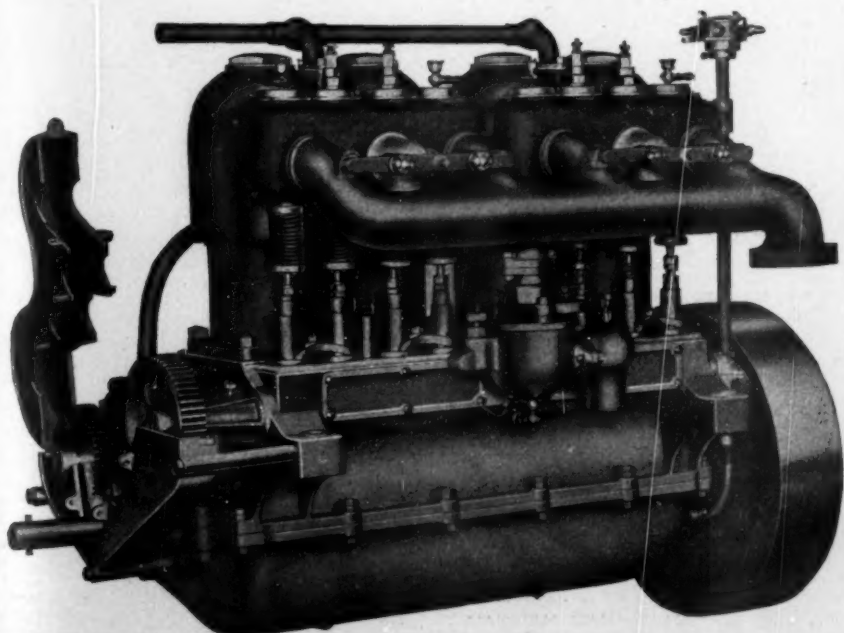
Ben. L. Jones, president of the Macon (Ga.) Automobile Club, has entered the trade as a partner of Shinholser & Co., at Jeffersonville, Ga., who handle the Franklin, Cadillac and Pope-Waverley in that territory.

Le Roy Pelletier has assumed charge of the advertising work of the Ford Motor Company, of Detroit, Mich. Mr. Pelletier is well known in trade journalistic circles and was lately connected with a Chicago publication.

Georges Griller, formerly of the Renault Company, has returned to Chicago from a business trip to Paris, where he closed a contract with the Renault people to equip their cars with a new shock absorber which he has invented.

Vice-President E. R. Hollander, of the Hol-Tan Company, of New York, is returning from Europe, where he completed arrangements for a Fiat team to compete in the Vanderbilt Cup race on the Italian team. Three members of the team who have been seen in America will be Lancia, Cedrino, and Nazzaro. It is expected that Mr. Hollander may bring over with him the auto-boat *Fiat XIII*, which won the Prince of Monaco Cup in the recent Monaco meeting.

George P. Moore, of San Francisco, Pacific Coast representative of the Goodyear Tire & Rubber Company, spent last week at the factory, at Akron, Ohio. He pre-



CONTINENTAL TYPE O 45-H.P. MOTOR, WITH INLET AND EXHAUST VALVES ON SAME SIDE.

dicts that the sale of commercial vehicles and their accessories will be increased tenfold on account of the earthquake. The calamity to the city will act only as a temporary check to the automobile and tire trade there.

TRADE NOTES.

The Neumastic Tire Company, of St. Louis, has decided on the location of its New York plant, which is to be at 370 Manhattan avenue.

The Reliance Motor Car Company, of Detroit, Mich., has established a branch agency at 141 Massachusetts avenue, with J. R. Bradford in charge.

Clement-Bayard cars will be represented in New England in the future by the French Carriage Company, at the corner of Summer and Devonshire streets, Boston.

The Buffalo Automobile Station Company, 240 West Utica street, that city, has been made exclusive selling agent for the National line of cars for western New York.

The Hartford Suspension Company has moved to its new building at Broadway and Eighty-eighth street, New York City, where there has been fitted up a special salesroom for the sale of Gobron-Brillie cars, besides a place where Hartford suspensions can be applied while one waits. Some of the latest

of the Gobron-Brillie cars are expected from Europe in another week for immediate delivery. J. Pierpont Morgan is one of the recent buyers of Gobron-Brillie cars, he having purchased two of them.

C. S. Mendenhall, the map publisher of Cincinnati, Ohio, has just issued a new map of Maryland and Delaware. This edition shows an improvement over the previous work, and is useful to autoists as showing the general layout of the territory covered.

The Michelin Products Selling Company, Inc., of 31-33 West Thirty-first street, New York City, has established a subsidiary company to repair all makes of tires under Michelin methods, under the name of the Michelin Tire Repair Works, J. A. Straus, manager, at 242-244 West Forty-first street.

The National Sales Corporation, of New York, heretofore located at 256 Broadway, has removed to more commodious quarters at 296 Broadway, in order to accommodate its growing business. This company reports unusual activity in the various appliances handled by it as factory selling agent.

At the Rainier Company's New York show rooms, on Broadway, the business of taking new orders and delivering cars ordered goes merrily on. During the week 35-horsepower Rainier cars were purchased

by Alfred T. White, one of the first officials appointed by Mayor McClellan for the San Francisco relief fund; T. B. Ackerson, president of the New York Land & Warehouse Company; Gilbert Elliot, E. A. Strout, A. A. Carpenter, Jr., and John Clark Udell; the latter is buying his second car.

The East Liberty Automobile Company, of Pittsburg, has appointed sub-agencies for distributing Jackson touring cars in five counties of western Pennsylvania. The company is having an active demand for second-hand cars, especially of the late models, and will make this a feature of its business.

The Times Square Automobile Company has moved from 164 West Forty-sixth street, New York, to 215-217 West Forty-eighth street, the premises formerly occupied by the Vicquet Automobile Company. The new location will give the company four floors, 59x110 feet, with every facility for the rapid handling of cars.

Russell Drisko has taken the management of the Bay State Auto Company, of Boston, Mass. The concern is located at 1008 Boylston street, and it has a completely appointed mechanical garage on Norway street. Mr. Drisko is well known to the trade, having for many years been associated with Frederick E. Randall, agent for the Stevens-Duryea automobiles at 245 Columbus avenue.

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